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VOL. 4 JULY, 1930

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(SUCCESSOR TO THE STATE HOSPITAL

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A NOTE ON SOME POST-MORTEM BLOOD CHANGES OBSERVED IN EPILEPSY*

BY

HAROLD A. PATTERSON, A. M., M. D., F. A. C. P.
SAMUEL M. WEINGROW, M. D.
LAURA BENNETT PATTERSON, M. S.

During a series of studies of the morphology of the blood in living epileptics[1 2 3] it occurred to us that it might be interesting to contrast the premortem findings observed with some similar post-mortem results. This led to the observations described below, which are deemed worthy of report since they appear to indicate the differing stability of the various portions of the cells described, the likely methods of their disintegration, and the probable relative importance of the several parts in the metabolism and functioning of these cellular structures. In this respect this rather detailed account seems to us, contributory to, as well as confirmatory of the general features already described in the literature on this subject.

These observations were made on a small series of 20 adult epileptics of both sexes, autopsied within a period of from 1½ to 24 hours after death, in whom there was no evidence of the presence of any disease directly affecting the corpuscular elements of the blood, such as pernicious anemia, or any condition that might involve the humoral portion of the blood, such as uremia, which tends to produce a deposit of extraneous material in the serum. They include an attempt to study coagulation and bleeding times, blood films, and differential, leucocyte and erythrocyte counts in the postmortem state.

In determining the coagulation time we employed the technique already reported with our living subjects[4 5], using the capillary method and obtaining the blood from a skin puncture. Normally, when blood is secured from an ordinary skin puncture, coagulation takes place in from 2-6 minutes, usually about 4½ minutes. The time is influenced by temperature, the size of the drop, the smoothness and cleanliness of the instruments and other factors such as meals and admixture with tissue juices. Spangler[6] has reported that the coagulation time is usually accelerated (shortened) in epilepsy—an observation which we have been able to confirm[4 5]. In the

* From Craig Colony Laboratory.

seven cases of epilepsy in which we had an opportunity to study the coagulation time after death, we found the average postmortem coagulation time to be 12 minutes and 4 seconds. In two of these individuals there had also been ante mortem estimations of the coagulation time, which were 2 and 4½ minutes respectively. Again, in one series of 98 instances which we have recorded[4], the average premortem coagulation time in epilepsy was 3 minutes and 12 seconds, while in another of 509 observations later reported[5], the average ante mortem coagulation time was 2 minutes and 38 seconds. Moreover, there is no overlapping between the range in these 600 ante mortem cases and that of the seven postmortem cases. Thus, although the seven cases described are inadequate to warrant generalization, nevertheless, they tend to indicate, when regarded in the light of the other considerations mentioned above, that after death coagulation time is delayed.

Todd[7] suggests that the determination of coagulation time should always be supplemented by the estimation of the bleeding time. The latter is a term used by Duke[8] to indicate the time required for a small cut to cease bleeding. It does not necessarily parallel the coagulation time of the blood, for it is thought to be largely dependent upon the efficiency of the tissue juices in accelerating clotting, upon the elasticity of the skin, and upon the mechanical and chemical action of the blood platelets. In determining the bleeding time we used the same technique as in our ante mortem investigation[4, 5].

The normal bleeding time is usually given as from 1-3 minutes, although it is claimed that it may be prolonged to 8 minutes. In determinations on 634 live epileptics we found the average ante mortem bleeding time to be 2 minutes and 17 seconds.[5] In the seven cases in which we had the opportunity to study the bleeding time postmortem, we found that there is really no bleeding time after death since there is no free flow of blood from an incised wound.

Two hundred sixty-seven blood films were secured from 13 different autopsies. In them we were able to trace in considerable detail, changes which appeared in the red and white corpuscles and sometimes in the plasma (crystals). From these 267 preparations, microphotographs of 132 illustrative fields were prepared; some of the most typical of which are presented in the accompanying plates.

The erythrocytes showed changes in size, shape and staining

PLATE I.

FIG. 1

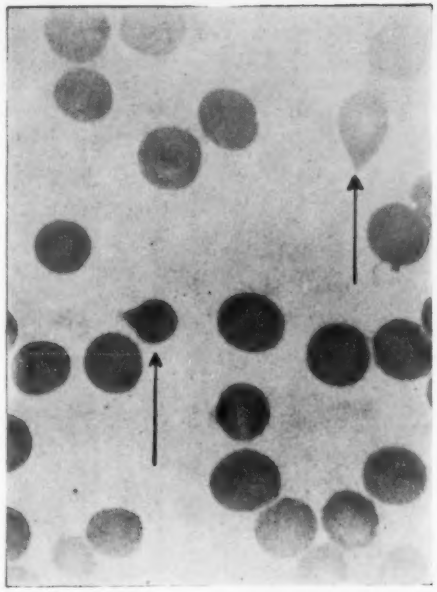

FIG. 2

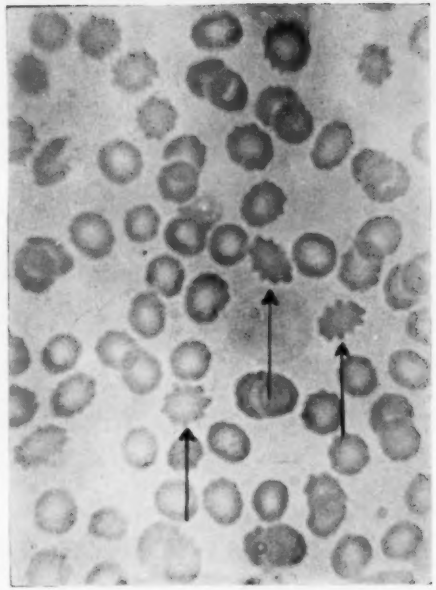

FIG. 3

PLATE II.

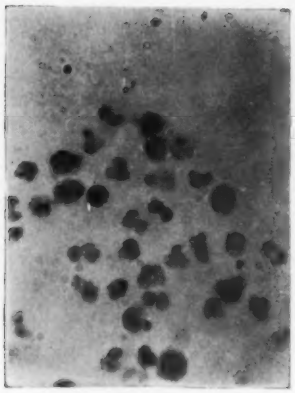

FIG. 4

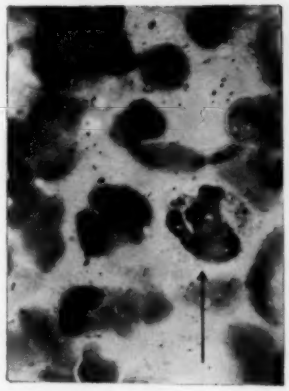

FIG. 5

FIG. 6

FIG. 7

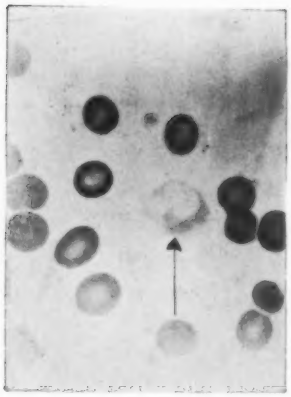

FIG. 8

FIG. 9

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PLATE III.

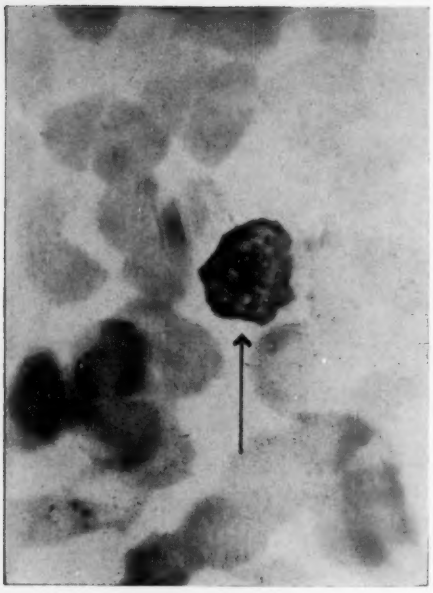

FIG. 10

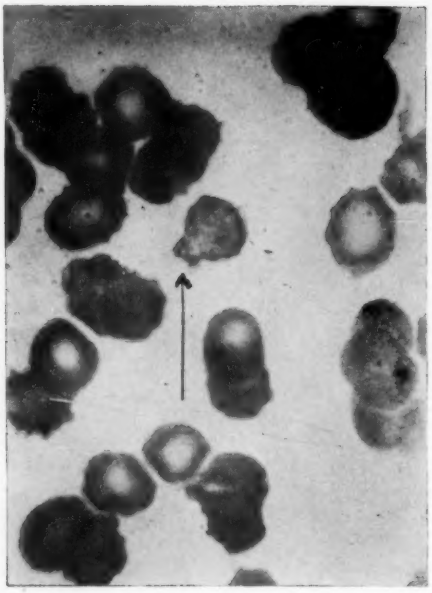

FIG. 11

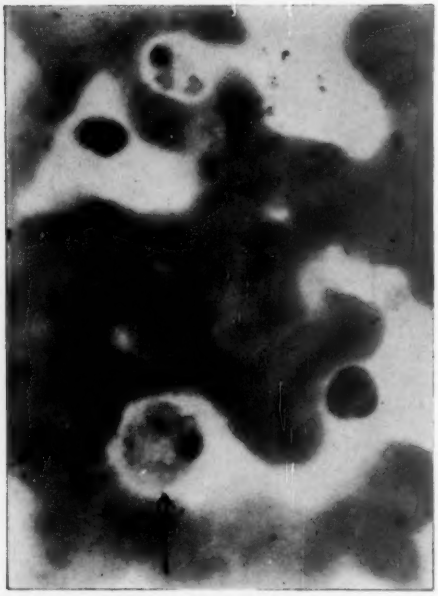

FIG. 12

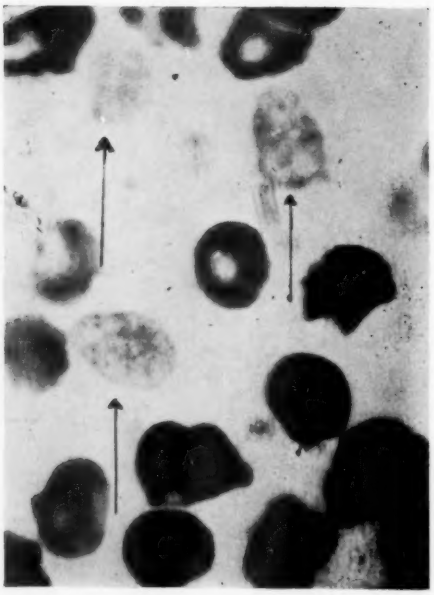

FIG. 13

properties. There are illustrated in Plate I, Fig. 1 displays of an erythrocyte which has undergone modification in shape, reduction in size and accentuation in staining properties as compared with the other red corpuscles in the same picture. Fig. 2 shows anisocytosis and poikilocytosis. In Fig. 3 may be seen crenation and achromia, both of which were frequently encountered in these postmortem films.

The changes observed in the polymorphonuclear neurotrophiles consisted in modifications in nuclear and cytoplasmic material, both of which undergo alterations in size, shape and staining properties. Plate II portrays these changes. Fig. 4 discloses partial and complete destruction of the cytoplasm in the "polys", without nuclear disintegration. (Note the resemblance between this film and a smear obtained from pus). In Fig. 5 we see beginning nuclear changes. The nucleus has become swollen, appears vacuolated and extends to the periphery of the cell, while the surrounding cytoplasm has become coarsely granular. Figs. 6, 7, 8 show further progressive nuclear change. In all of them the cytoplasm of the cell no longer takes the stain. In Fig. 6 the nucleus has become displaced toward the periphery of the cell while in Fig. 7 this displaced nuclear material has partially degenerated and in Fig. 8 it has almost disappeared. Fig. 9 shows what we interpret as a complete and generalized disintegration of the "polys."

Changes observed in the small lymphocytes are indicated in Plate III. In Fig. 10 the cytoplasm has been lost, the nucleus has become swollen and distorted in outline, and stains unevenly. Beginning extrusion of the nuclear material may be seen in Fig. 11, while in Fig. 12 there is further nuclear degeneration as evidenced by the failure of the nuclear substance to take the stain with the exception of what seems to be the nucleolus which has been crowded to the perphery of the nucleus, the outline of the latter in this case having been preserved intact. Fig. 13 shows a still more advanced stage in the disintegrative process so that only supporting reticular structures remain.

Changes in the large lymphocytes are depicted in Plate IV. The large lymphocyte shown in Fig. 14 has become swollen and although much of the cytoplasm still remains, the nucleus has been distorted in outline, cleft into two segments and stains irregularly. Fig. 15

shows the disappearance of the cytoplasm and further degenerative changes in the nucleus. This stains poorly and very unevenly except for the mass that resembles the nucleolus, which is well preserved as may be seen in the figure. More advanced degenerative changes appear in Fig. 16 where only the supporting reticulum remains.

Plate V reproduces crystals of various types which were sometimes found in the films. Figs. 17, 18, 19, and 21 represent smears made from blood taken from the tips of the fingers. While Fig. 20 represents a film prepared with blood taken from the hepatic vessels. We are unable to offer any interpretation of the significance of these crystals, if they have any, but present them simply as a part of our observations.

Under the microscope no eosinophiles could be found in our blood films. Similarly, no cell forms which could be definitely identified as endotheliocytes could be discerned in a study of the smears.

The absence of blood platelets was also a conspicuous feature of our films. The platelets, likewise, tend to disappear very shortly after death. In this connection it is of interest in passing to take cognizance of Cattell's[9] observation that although there may have been an increase in blood plaques in uremia during life, they are most difficult of demonstration in this condition even shortly after death.

In addition to the blood films taken from the finger we also prepared a considerable number of smears from the cut surfaces of various internal organs, such as the liver and pancreas, and also from the blood vessels of these viscera. The purpose of this procedure was to contrast the preparations from these organs with those secured from the peripheral circulation in order to determine, if possible, whether the postmortem changes occurring in the vicera produced alterations in the blood picture which differed from those occurring in the peripheral circulation. Illustrations of such preparations are omitted, since, except for the introduction of material not properly belonging to the blood as a tissue, these films show no significant changes not already described in the discussion of the preceding microphotographic preparations of the peripheral blood.

In these postmortem observations it was intended at first to include total red and white counts, but we soon found that this plan

PLATE IV.

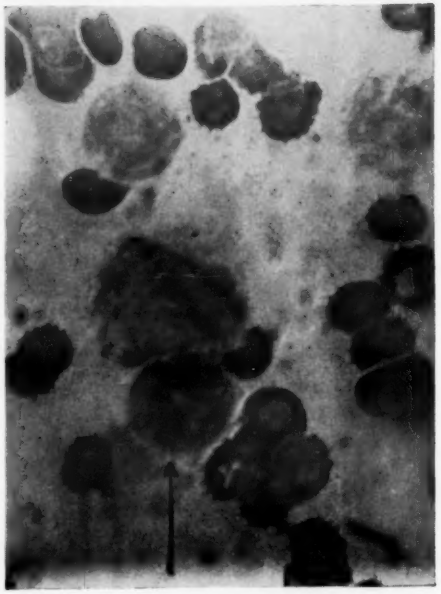

FIG. 14

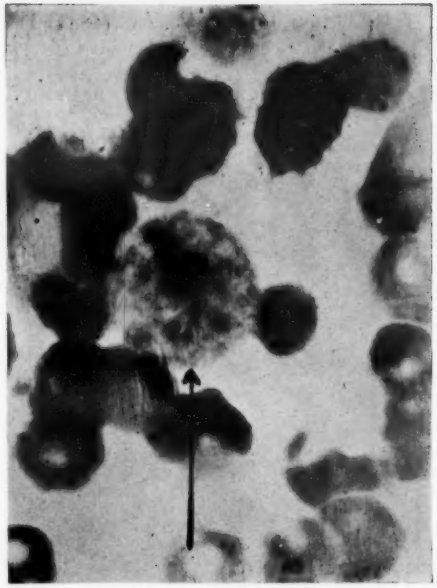

FIG. 15

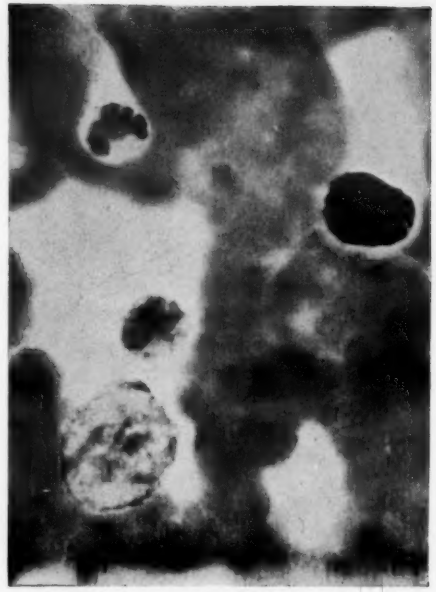

FIG. 16

PLATE V.

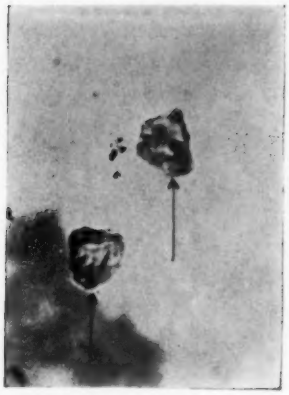

FIG. 17

FIG. 18

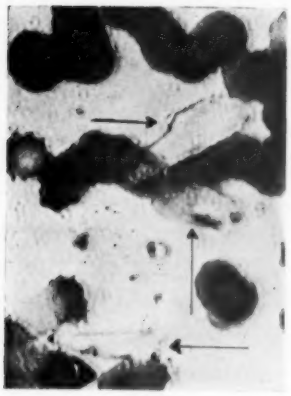

FIG. 19

FIG. 20

FIG. 21

had to be relinquished. Since, as we have already indicated, there is no free flow of blood after death, it was quite difficult to obtain blood for the total erythrocyte count because the pressure that it was necessary to exert to secure a sufficient quantity of blood, produced a profuse admixture with tissue juices which rendered the results obtained uncertain and inaccurate. With the total leucocyte count the additional difficulty presented itself, that certain types of white cells tend to disintegrate and disappear soon after death as our blood films indicate. The differential count, likewise, had to be abandoned because of the frequency with which forms were encountered that had undergone sufficient change to destroy their identity.

The observations described in detail above may be summarized briefly as follows: In the seven cases studied the coagulation time was markedly delayed postmortem. As might be expected, there is no bleeding time in the strict sense of the word, after death. In our examination of 267 blood smears obtained from 13 autopsies, modifications of the blood picture with regard to platelets, red cells, white cells and plasma were discovered. Blood platelets were seldom seen in the films prepared after circulation had ceased. The erythrocytes showed anisocytosis, poikilocytosis and altered chronic reactions. The leucocytes showed varying stages of disintegration in their different forms. The "polys" exhibited cytolysis; nuclear changes including eccentricity—perhaps with extrusion from the cell—karyolysis, sometimes with karyorrhexis; and finally disruption of the supporting reticular structure, which survives the other elements of the cell. Both large and small lymphocytes seem to follow a similar cycle of degeneration, but in these the processes of karyolysis and karyorrhexis seem to unmask a previously concealed mass which resembles a nucleolus and preserves its integrity after that of the nucleus is lost, disappearing just before the terminal dissolution of the supporting reticulum. Eosinophiles and endotheliocytes cannot be recognized in the smears. Crystals are sometimes seen in these blood films. Preparations from internal viscera exhibit no other significant changes except the introduction of cellular forms not belonging properly to blood as a tissue. Red, white and differential counts could not be performed satisfactorily after death in the usual ante mortem fashion because of the difficulty presented by the altered conditions.

At this point a brief consideration of some of the theoretical implications of the data presented above, as we interpret them, seems in order.

The alterations in the red corpuscles, the appearance of crystals in the plasma and the disappearance of blood platelets suggest a postmortem change in the fluid portion of the blood from an isotonic to a hypertonic medium.

The loss of platelets may perhaps account for the retardation of coagulation time noted after death.

The absence of eosinophiles and endotheliocytes in our films, we regard as indicating the disintegration of these cells soon after death. Although the tenure of life of a leucocyte is unknown,[10] it is generally conceded that the eosinophile is the most fragile variant of the white cell, as it may be seen in various stages of dissolution in ante mortem blood smears. Now, if we may accept the postulate that this variety of leucocyte is likely to be the first type to be destroyed, as applying also to films made after death, we can infer that the eosinophiles and endotheliocytes disappear from the blood stream in the order named.

Thus, while the speed at which disintegration proceeds seems to vary considerably in the different forms of white cells, the ultimate goal of the degenerative process in all leucocytes appears to be complete destruction of the cell. This variation in the rate of autolysis points to the existence of a considerable range of individual difference in viability in the different types of white cells. The various phases of dissolution observed in the smears for a given species of leucocyte are, no doubt, but differing manifestations of the disruptive process, and suggest the occurrence of a range of instability in the constituent components of white cells of the same kind, which probably corresponds to the significance of the role played by each part of the cell in the metabolism and functioning of the structure as an integrated unit. In the light of this interpretation, the more stable nucleus exerts a greater influence on the normal activity of the cell than does the cytoplasm, and the nucleolus, if present, stands in a similar relation to the nucleus as the latter does to the cytoplasm. On the other hand the relative persistence in the film of the supporting reticular structure is very likely due to its different and less delicately balanced chemical composition rather

than to a high degree of participation in the function of the cellular mechanism.

We realize, of course, that the number and the highly selective character of the autopsies in our series is inadequate to insure a fair random sampling, and feel that the chief merit of the observations which we have had the opportunity of making, insofar as they have any value at all, lies in directing further attention to the possibilities in this field which seem to us neither uninteresting nor unpromising. The prosecution of this task naturally falls to those who command a greater diversity of material than ours, and upon them we hope it will exert what we believe to be a worthy appeal. In the meantime, from our own rather meagre material, we venture to offer the following tentative conclusions:

1. Strictly speaking, there is no bleeding time after death.

2. Leucocyte and erythrocyte determinations and differential white counts cannot satisfactorily be carried out after death with the usual ante mortem technique because of the inaccuracies introduced by postmortem conditions.

3. Coagulation time seems to be delayed postmortem.

4. Blood plaques are most difficult of demonstration even directly after death.

5. The erythrocytes show anisocytosis, poikilocytosis and altered chromatic reactions in a postmortem blood film.

6. The various forms of leucocytes appear to differ in their rate of autolysis.

7. Polymorphoneuclear neutrophiles appear to undergo successively, cytolysis, nuclear changes, including swelling, karyolysis and karyorrhexis (with or without the extrusion of nuclear material), and finally dissolution of the supporting reticulum.

8. Lymphocytes, both large and small, seem to follow a similar cycle of degenerative change during which chromatolysis may disclose an apparent nucleolus.

9. The differential rate of dissolution probably depends upon differences in chemical composition of the cell or its disintegrating constituents, and may be correlated with functional significance.

10. Postmortem blood smears from the viscera show no other significant changes than those found in films from the peripheral

circulation, except the introduction of cellular elements not properly belonging to the blood as a tissue.

11. Crystals may sometimes appear in postmortem blood films.

12. After death the plasma seems to change from an isotonic to a hypertonic medium.

We wish to gratefully acknowledge our indebtedness to Mr. Trevelli of the Eastman Kodak Company, Rochester, N. Y., for his invaluable suggestions in regard to the microphotographs, and to Dr. L. A. Damon, Sonyea, N. Y., for the preparation of the same.

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BRAIN TUMORS

Their Pathology, Symptomatology, Diagnosis and Prognosis

BY LEO M. DAVIDOFF, M. D.

PART II

INTRACEREBRAL TUMORS

GLIOMAS

Tumors found within the brain substance may arise from the ectodermal elements of the nervous tissues, the connective tissue, or endothelium of the blood vessels. They may be metastatic neoplasms from the lungs, genital or urinary tracts, breast, bones, etc. They may be granulomas or cysts of bacterial or parasitic origin.

About 50 per cent of all intracranial tumors arise from the glial supporting tissue of the brain. This has been a universally recognized fact for a surprisingly short time. The reason for this backwardness seems to have been that a glioma was diagnosed only where mature glial cells were found in the tumors. The stimulus, arising through the Spanish school of histologists headed by Ramon y Cajal, to study not only the various mature glial elements but the developmental stages of the glia cells from the primitive epithelium of the medullary tube to maturity, has led modern pathologists, notably Stroebe, Ribbert, Mallory, Globus and Strauss, Roussy, Lhermitte and Cornil, Bailey and Cushing, Penfield, Carmichael and many others, to a re-estimation and a reclassification of brain tumors. The result has been that not only have a large number of so-called sarcomas and gliasarcomas been rescued for the glioma series, but, incomprehensible appearances of gliomas have been explained on a histogenetic basis. This will serve, by way of introduction, to emphasize the importance of some knowledge of the histogenesis of the brain. Unfortunately, the stages of development are not yet completely known or understood. However, what is known to date is concisely summarized by Bailey and Cushing[16] in their recent monograph on "Tumours of the Glioma Group" from which the following is freely borrowed.

Early in embryonic life, the ectoderm along the axial line becomes

thickened to form the medullary plate. This is rapidly converted into the medullary groove, then into the medullary tube, which enlarges and subdivides into the primary brain vesicles at its anterior end.

The original medullary plate consists of a single layer of large columnar epithelial cells which may be called *medullary epithelium* (Fig. 23). From this single layer of cells the entire complicated structure of the brain comes into being.

The earliest change in the medullary epithelium is heralded by the appearance among the columnar cells of small, round, vesicular cells underoging mitoses (Fig. 23). These are known as germinal cells, and they have been shown to be the parent cells of the neuroblasts which in turn give rise to the nerve cells. The germinal cells multiply rapidly and not only separate the medullary cells from each other, but cause them to elongate in order to retain connections with the outer and inner limiting membranes of the original epithelium. These changed medullary cells are now known as primitive spongioblasts (Fig. 24). Not all the germinal cells differentiate into nerve cells, however; some continue to give rise to new generations of undifferentiated cells known as *indifferent cells* (Schaper) —meaning that their future differentiation is unpredictable—or medulloblasts (Bailey and Cushing[15]).

The neuroblasts developing from the germinal cells, when first seen, are globoid with the cytoplasm collected at one end. This is the apolar stage. Soon two processes appear giving origin to the bipolar stage, which yields to the unipolar stage when one process is withdrawn (Fig. 25). It is in the unipolar process that neurofibrillae are first demonstrable. After the unipolar stage is reached, the nucleus begins to transform, then multiple processes appear (multipolar neuroblast) until finally the tigroid substance is laid down in the cytoplasm, myelin is deposited around the axone, and the adult neurone results.

Meanwhile, as already noted, the medullary epithelium has elongated into primitive spongioblasts. These fall into two types: (1) those in which the nucleus tends to gravitate toward the external limiting membrane and eventually transform into neuroglia, and (2) those in which the nucleus remains in close proximity to the ventricular surface (the internal limiting membrane) and later give

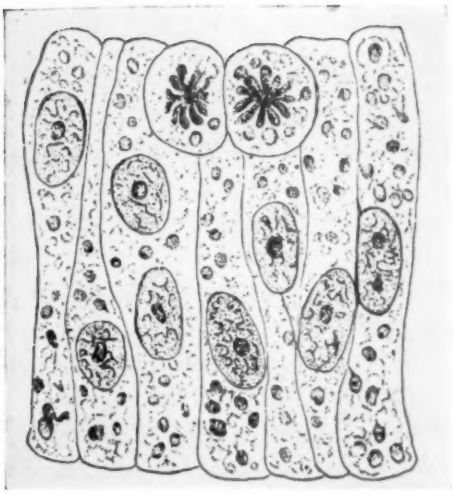

Fig. 23. Medullary epithelium. Two germinal cells above. [After His.] (Bailey and Cushing[16], Fig. 1.)

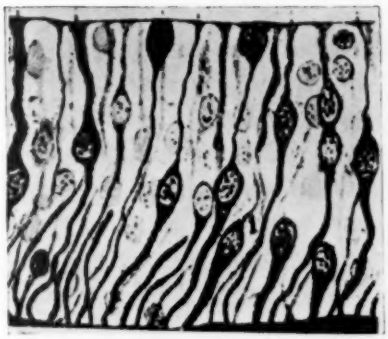

Fig. 24. Primitive spongioblasts in the olfactory bulb of recently-born dog. Gold-sublimate method. [After Castro.] 1, bipolar form. (Bailey and Cushing[16], Fig. 7.)

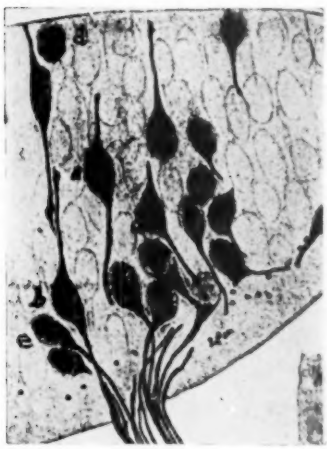

Fig. 25. Neuroblasts in the ventral part of the medullary tube. 1 cm. pig. embryo. Pyridine-silver method. [After Held.] a, b, c, bipolar; d, apolar; e, unipolar. (Bailey and Cushing[16], Fig. 3.)

Fig. 26. Unipolar spongioblasts in the olfactory bulb of recently-born dog. Gold-sublimate method. [After Castro.] a, unipolar type; e, process acquiring attachment to capillary wall. (Bailey and Cushing[16], Fig. 8.)

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origin to the ependymal cells. The ventricular ends of these cells are ciliated and blepharoplasts appear as diplosomes at the base of the cilia. The primitive spongioblasts of the first type divide amitotically and are known as *bipolar spongioblasts.* They soon undergo an atrophy of the process connecting them with the internal membrane, then the process uniting them with the external membrane becomes freed. The cell at this stage is piriform in shape with a long process from the narrow end, and is known as the *unipolar spongioblast* (Fig. 26).

Although the transitional stages have not been demonstrated, it is believed, on good grounds, that the undifferentiated cells or medulloblasts also produce a certain number of unipolar spongioblasts.

However they may arise, the unipolar spongioblasts soon all migrate toward blood vessels against which their prolongments become attached with an enlargement known as the "sucker foot." At the same time small processes are sent out in all directions from the protoplasm. The developmental stage during which this occurs is known as the *astroblast* stage (Fig. 27). During this stage neuroglia fibrils appear in the cytoplasm of some of the cells. These cells are the precursors of the fibrillary astrocytes. Those cells that reach maturity without fibril formation are known as *protoplasmic astrocytes.* The two types together compose the *neuroglia.* Further division into subvarieties exists depending upon finer histological details with which we cannot here be concerned. It may be mentioned, however, that normally the protoplasmic astrocytes are found chiefly in the middle and deep layers of the cerebral cortex as well as in the molecular layer of the cerebellum, while the fibrillary cells are more common in the outer cerebral layers and in the white matter.

The *oligodendroglia* are also cells of probable ectodermal origin which are demonstrable with considerable difficulty even in normal tissues. Their developmental stages have not been completely studied, but they probably arise from medulloblasts which wander among the fibers of the long nervous pathways.

The *microglia* have not been studied at all from the developmental point of view. They probably arise from the mesoderm. Their function of phagocyting degenerative products within the

nervous system is all important, but, so far, no tumors arising from them have been positively proven.

In addition to the neuroglia and oligodendroglia, the ectoderm of the central nervous system is also the source of certain cells of special location and function. Thus in the roof of the third ventricle appear the cells of the *pineal* parenchyma, characterized by their huge spherical nuclei, numerous blepharoplasts and thick processes ending in bulbs. Covering the choroid *telas* the primitive epithelium becomes cuboidal, loses its cilia and blepharoplasts and the protoplasm becomes packed with coarse granules (mitochondria). As already mentioned, the type 2 primitive spongioblast is destined to become the adult *ependymal cell.* These cells are cuboidal and except in limited areas (the median raphé of the fourth ventricle) have lost their cilia but their blepharoplasts can still be identified and remain characteristic of them.

Bailey[12] published a very comprehensive chart showing graphically the entire histogenesis of the brain which is here reproduced (Fig. 28).

Although different varieties of gliomas had been recognized and described by numerous authors on numerous occasions, the credit is, nevertheless, due to Bailey[16 12 13] and Cushing for a systematic classification of the gliomas according to the histogenetic stage to which the majority of the cells of any given tumor belong. They finally evolved the following 14 groups:

1. Medullo-epithelioma
2. Medulloblastoma
3. Pineoblastoma
4. Pinealoma
5. Ependymoblastoma
6. Ependymoma
7. Neuro-epithelioma
8. Spongioblastoma (a) multiforme; (b) unipolare
9. Astroblastoma
10. Astrocytoma (a) protoplasmicum; (b) fibrillare
11. Oligodendroglioma
12. Neuroblastoma
13. Ganglioneuroma
14. Papilloma choroideum

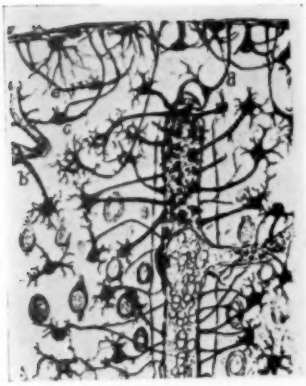

Fig. 27. Astroblasts in cerebrum of 15-day cat. Gold-sublimate method. [After Cajal.] (Bailey and Cushing[16], Fig. 9.)

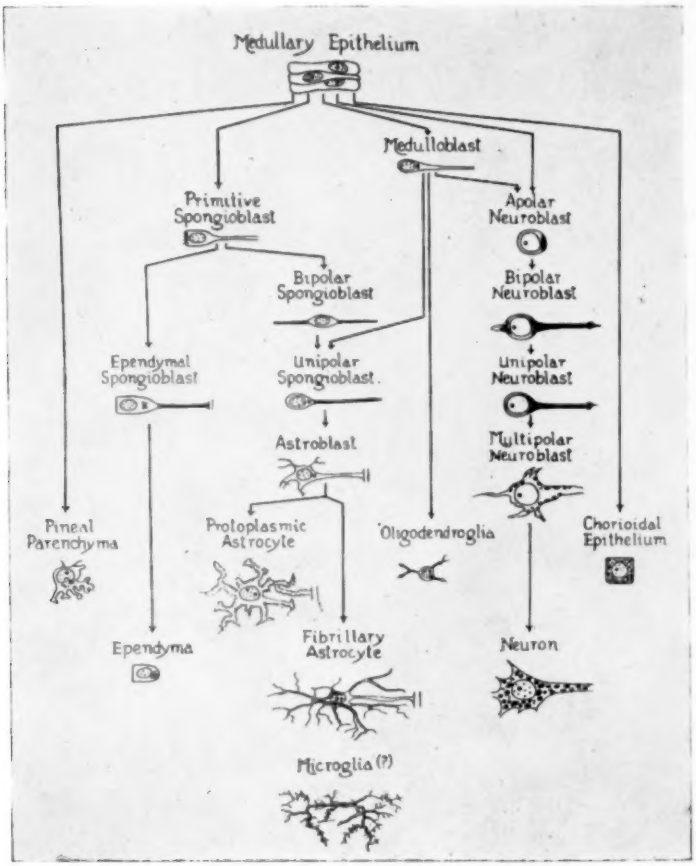

Fig. 28. Scheme showing the histogenesis of the cells of the central nervous system with diagramatic drawings of the appearance of the cells in the different stages of development. (Bailey[12].)

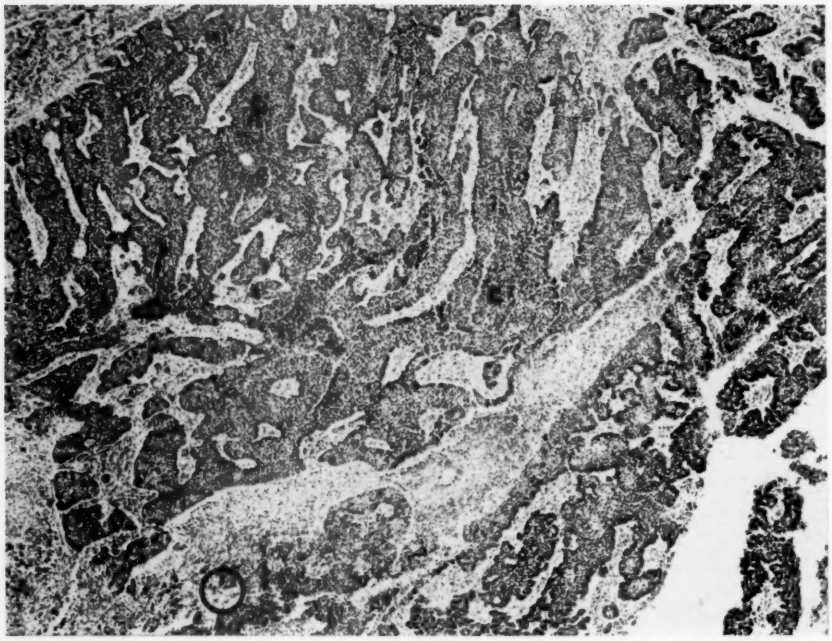

Fig. 29. Medullo-epithelioma appearing in the midst of a spongioblastoma multiforme. X60. Haemotoxylin and eosin. (Davidoff and Ferraro[75], Fig. 7.)

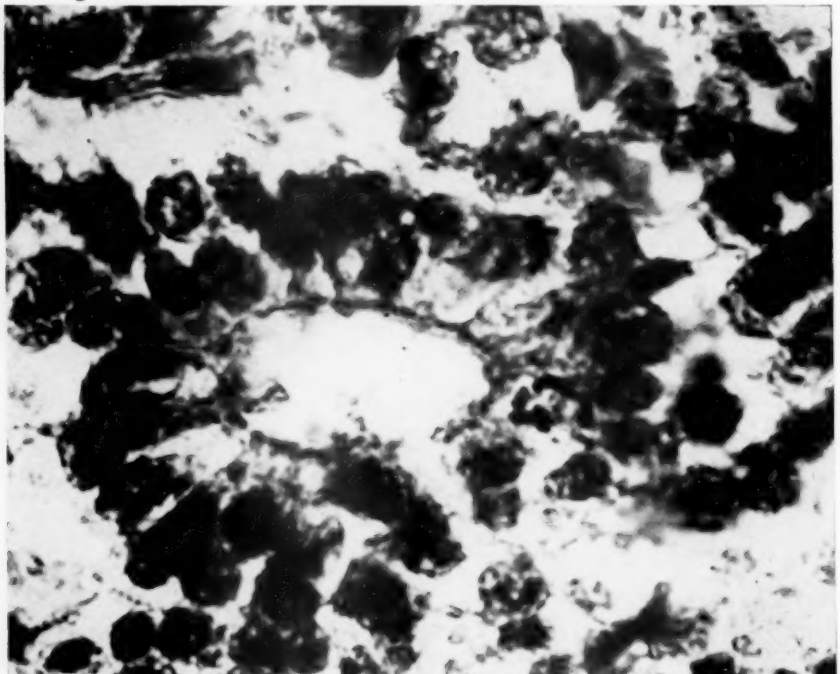

Fig. 30. A rosette-formation occurring in the area shown in Fig. 29. Note the membrane forming, just outside the inner extremities of the cells. X1000. Phosphotungstic acid haemotoxylin stain. (Davidoff and Ferraro[75], Fig. 8.)

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Admitting that this classification cannot be final, both because considerable dispute exists concerning the origin of some of the cell types and concerning the names given to certain of the groups even when the histogenesis is known, it will serve, nevertheless, as an outline for the histology of the gliomas, and will be followed in the order given here in the subsequent descriptions.

1. *Medullo-epithelioma.* This is an extremely rare tumor which is likely to arise from the roof or floor plates where the primitive epithelium remains undifferentiated up to adult life. Bailey and Cushing report only two cases. Davidoff and Ferraro presented a spongioblastoma multiforme in which one small area showed a typical picture of a medullo-epithelioma (Fig. 29). The tumor cells grow in bands in which limiting membranes are usually demonstrable (Fig. 30). The cells are large, columnar, with well defined boundaries, and large vesicular oval nuclei. No fibrillary material can be made out. Mitotic figures are exceedingly common.

2. *Medulloblastoma.* This tumor is identical with the neurocytoma or neuroblastoma described by Wright.[204] It is a fairly common type of growth, comprising about 11 per cent of Cushing's glioma series. It occurs most frequently in the cerebellar vermis of children but may be found elsewhere.

Grossly, it is a succulent, grayish pink structure, the presence of which may be suspected at operation by the width of the uvula of the vermis and the wide separation of the tonsils. Sometimes the growth is seen protruding between the uvula and calamus scriptorius, but frequently the vermis must be split before a view of the tumor is obtained. An infiltrating neoplasm, it nevertheless frequently shows sharp demarcation over a considerable extent of its boundaries. Occasionally it may become implanted throughout the sub-arachnoid space, and resemble a "sarcomatosis."

Under the microscope, it presents a picture of rapid growth with many mitotic figures and closely packed cells. The type cell is large with roundish to oval nucleus of heavy chromatin content. The cytoplasm may envelop it uniformly or stream away at one end in an unstainable tail. The cells, although characteristically in a structureless mass, may appear in rows or form pseudo-rosettes (Fig. 31), the centers of which are occupied by the cytoplasmic tails.

The tumor has numerous capillaries to the walls of which most

of the connective tissue is confined. Frequently, however, fine strands of reticulin may be demonstrated bridging the spaces between capillaries and confining the cells to rows.

Finally, the tumor cells seem to possess a bi-potentiality in that they may differentiate into both neurones and neuroglial cells which may be demonstrated by means of specific stains for nerve cells, neurofibrils, and glia-fibrils. It was this characteristic which lead Bailey and Cushing to the belief that in this neoplasm they were dealing with cells from an embryonic stage earlier than both neuroblasts and spongioblasts, namely medulloblasts, hence the name medullo-blastoma.

3. and 4. Tumors of the pineal are in a nicer sense extracerebral and have already been discussed.

5. and 6. *Ependymoblastoma and Ependymoma.* Tumors consisting of cells arising from the ependyma are quite rare. The incomparable collection of Cushing up to January 1, 1927, contained only 16 examples and these are mostly fragmentary specimens removed at operation. Bailey, in his thorough search of the literature, has been unable to find more than nine authentic cases. Davidoff and Ferraro presented three additional cases. The majority of these growths are located in the neighborhood of the fourth ventricle. Thus Muthmann and Saurbeck[149] by means of serial sections, have demonstrated the origin of their tumor to be from the velum medullare posterior. Bailey has also been able to demonstrate post-mortem, very beautifully, the origin of such a tumor from the velum medullare posterior. But origin is possible from anywhere in the ventricular lining or the central canal of the spinal cord. Thus in Hausmann's[104] case and in one of Davidoff and Ferraro's cases, the tumor seemed to have arisen from the lamina terminalis. Another one of the latter's cases arose in the central canal of the cervical cord, while one of Mallory's[140] cases was located in the sacral region. In the region of the fourth ventricle the ependymal tumors occupy a very similar location to that of the medulloblastomas, but the tumor of ependymal origin is usually paler, firmer, and sometimes nodular. It tends, moreover, to extend downward through the cisterna magna into the spinal canal, unlike the medulloblastoma.

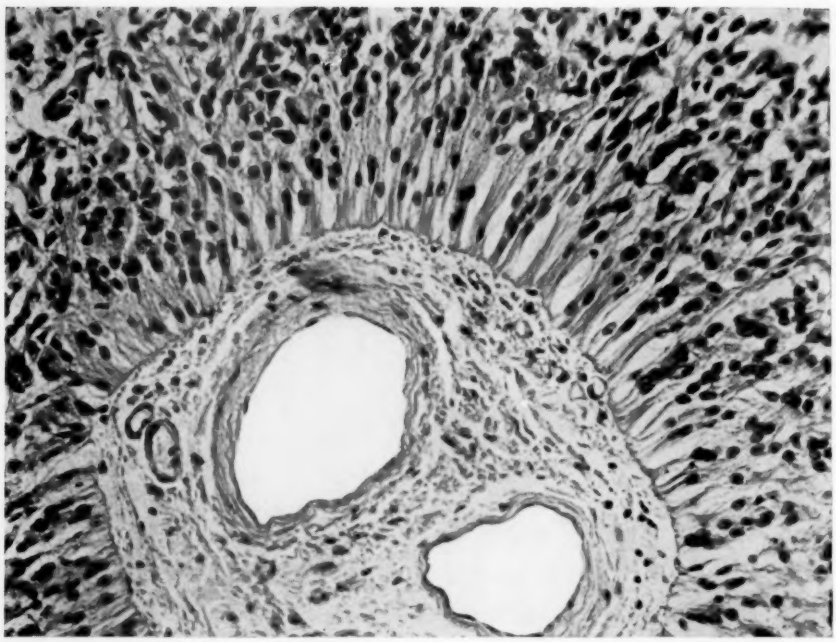

Fig. 33. Ependymoblastoma. The parts of the cells abutting the vessel wall consist of strong, wiry prolongments. X380. (Davidoff and Ferraro[75], Fig. 36.)

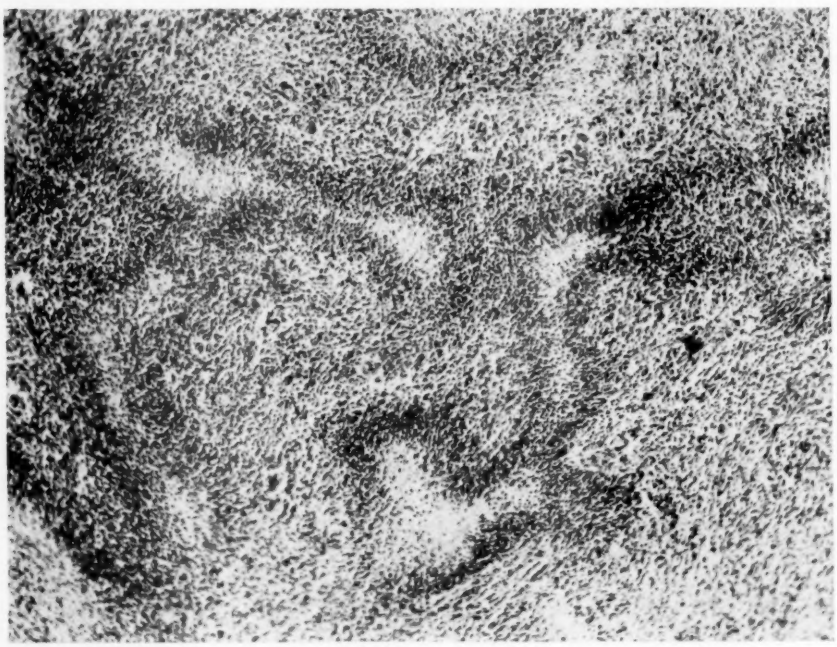

Fig. 34. Spongioblastoma multiforme showing the characteristic pseudo-palisade formation. X60. Haemotoxylin and eosin stain. (Davidoff and Ferraro[75], Fig. 11.)

Microscopically these tumors consist usually of columnar, cuboidal, or polygonal cells. The connective tissue is abundant and surrounds the blood vessels.

In characteristic areas, blood vessels, alone or several in a group, appear at the center of rosette-like formations. Near this vascular "core" the cells possess a columnar shape, but passing outward, they lose their radial arrangement and form a meshwork of cells of irregular shape and arrangement (Fig. 32). Mitotic figures are rarely seen among the tumor cells.

The cells making up the tumor contain in their cytoplasm small dot or rod shaped bodies two to six or eight in number surrounded by a light halo. They may best be demonstrated in tissue fixed in Zenker's solution or on formalin-fixed tissue treated according to Davidoff's[73] technique, and stained with ethyl-violet orange-G or phosphotungstic acid haemotoxylin. Their nature is obviously that of blepharoplasts characteristic of ependymal tumors as described by Mallory and by Bailey.

In some of the tumors, many of the cells appear to end in coarse, stiff-looking fibrous processes which are braced against the central core. These cells resemble an earlier embryonic stage, the *ependymoblast,* or *ependymal spongioblast,* rather than the mature ependymal-lining cells (Fig. 33). Bailey[8 11] at first included all tumors of ependymal origin under the heading of *ependymomas.* Later he separated off those showing a predominance of less mature cells as *ependymoblastomas;* while, if we interpret his latest attitude correctly, he tends to make less of this distinction at present. This latest is probably the more accurate view. Although the distinction exists, the two types of cells are often intermingled in the same growth. The primitive ependymal cells are closely allied to the primitive spongioblasts. Tumors arising from the latter,—the so-called neuroepitheliomas,—also have blepharoplasts within the cells. They differ from the ependymoblastomas in that they form true rosettes, along the inner boundary of which the blepharoplasts align themselves, instead of forming pseudo-rosettes. Occasionally, however, one meets a tumor with both pseudo and true rosettes as in the case of Roman[136] when the diagnosis is difficult to make.

7. *Neuroepithelioma.* This is an extremely rare tumor especially in the brain itself. Cases have been reported in the cerebrum, however, as well as in the spinal cord and retina. The cells are arranged in rosettes, that is, around small open spaces. The inner borders of the cells have cilia as well as blepharoplasts which are characteristic of primitive spongioblasts. Bailey and Cushing have been able to collect about eight probable cases reported in the literature. No examples occurred in Cushing's collection.

8. (a) *Spongioblastoma Multiforme.* These are the most malignant and most numerous tumors of the glioma series, making up anywhere from 30 (Cushing), to 50 (Carmichael[84]), or 66 (Davidoff and Ferraro) per cent of all gliomas.

Clinically these spongioblastomas are rapidly fatal owing to their fulminating growth, a fact which led Stroebe[189] (1895), and many who followed him, to interpret the proliferation of the adventitial cells of the tumor blood vessels as sarcomatous—thus giving rise to the descriptive, if inaccurate, name of "Gliasarcoma." This term has implications incompatible with the modern conception of tumor growth which holds that two tissues from different embryonic layers do not both participate actively in the formation of neoplasms except in embryomas. The euphemism of Borst (1902), who proposed *gliasarcomotodes* as a compromise, has done nothing to dispel the original misconception and has not been favorably received, nor have a host of other names like *giant cell glioma, glioma ganglionare, myxoglioma, adenoglioma, glioma teleangiectaticum, neuro-epithelioma gliomatosa,* etc., served to replace it. The name "gliasarcoma" was therefore, not seriously opposed until many years later, by Kaufman (1911), Strauss and Globus[188] (1918), Ribbert[163] (1918), Greenfield[102] (1919), Roussy, Lhermitte and Cornil[167] (1924), and Bailey and Cushing[16] (1925).

As a result of a conference between Strauss and Globus[96] on the one hand and Cushing and Bailey on the other, the name *spongioblastoma multiforme* has been adopted for these growths. This implies that the tumor arises from immature glial cells and that both the gross structure of the tumor in different parts, as well as the morphology of the cells, are protein in character. At first glance, therefore, spongioblastoma multiforme would seem to be a very satisfactory name. But a closer acquaintance with the tumor

teaches one that, although in some areas the cells resemble the bipolar spongioplasts, in other areas there is only a distant resemblance of the tumor cells to these embryonic glial elements. And still other areas frequently occur in this type of growth with cells resembling embryonic types as primitive as the primary medullary epithelium. On the other hand, numerous cells are seen closely similar to completely differentiated astrocytes. On the basis of these facts, and because a restudy of the development of the oligodendroglia, now that the improved technique of Globus[95] and Penfield[155] is available, may result in an elucidation of the origin of many of the "atypical" cells occurring in this growth, the name *spongioblastoma multiforme* appears inadequate, and according to Davidoff and Ferraro the term *gliablastoma multiforme,* suggested by Bailey and Cushing, more accurately implies the characteristic morphological variability of the growth. It would, however, be short-sighted to believe that any name based on our knowledge thus far acquired of these neoplasms will be permanently satisfactory.

Gross characteristics. On transecting a brain containing a spongioblastoma multiforme, the growth is seen to infiltrate the surrounding nervous tissue. It is seldom found on the brain surface—although it often reaches the outer layers of the cortex. Owing to necrotic areas in various stages of development or, repair resulting from thrombosis or rupture of vessels in its large vascular bed, one may find cysts or areas of softening—often filled with old or fresh blood—or dense connective tissue scars. Many times the entire center of the tumor is necrotic or cicatricial, and only the advancing edge of it, invading the brain, shows the soft, grayish pink, semitranslucent appearance characteristic of the tumor tissue when seen before fixation. Taken in conjunction with the brief clinical history, indeed, even without considering its short course of development, it is usually a large tumor, often occupying the greater part of an entire hemisphere as well as extending across the corpus callosum to the other side. This neoplasm has a predilection for the cerebral hemispheres, rarely occurring primarily in the brain stem or cerebellum. Globus and Strauss call attention to the multiple centers of growth in distant parts of the same tumor.

Microscopic appearance. An outstanding characteristic of the gross as well as microscopic appearance presented by the spongioblastoma multiforme is the presence of large areas in various stages of necrosis, including complete repair by connective tissue. Even where tumor cells are still present, vacuolization, mucous degeneration and the presence of fatty products of degeneration give evidence of widespread destruction. The numerous giant cells present in this type of tumor are also looked upon by some authors as evidence of degeneration, representing cells which have failed to complete their division. They do, in fact, usually show a hyaline condition of their cytoplasm and fatty granulations when examined with stain for neutral fat. A very characteristic structure of these tumors is what Bailey has named the "pseudo-palisade formation" (Fig. 34). This consists of round, oval or elongated, pale areas surrounded by cells, for the most part containing pyknotic nuclei. When stained for fat the pale areas in the center prove to contain much fatty debris, and the surrounding cells all show a greater or lesser degree of fatty degeneration. This, too, then, is evidence of a degenerative center spreading outward and giving rise to structures which may be misinterpreted to be true rosette formations.

The spongioblastomas are highly vascular, but the blood vessel walls are for the most part undergoing hyalinization or some other pathological process. Great proliferation of the adventitial cells as well as the endothelial lining is often seen. This frequently gives rise to occlusion of the lumen and probably accounts for much of the widespread necrosis. The thin-walled veins are often ruptured with resulting areas of hemorrhage and further cause for necrosis. The free red blood corpuscles in the tissues break up readily, and many of the tumor cells as well as the adventitial cells of the blood vessels are seen filled with blood pigment granules.

In many of these tumors cystic degeneration is present. The cysts are frequently small areas but may also reach large size although maintaining the same characteristics. They are without definite walls or lining membranes and appear to be the result of solution of tissue without repair.

The tumor cells, wherever they may be seen in characteristic form, lie closely packed and are in apparently indifferent relation

to each other. They are stamped by a great variability in size and shape both of the nuclei and cytoplasm. The latter, with ordinary stains, often appears very scanty and ill-defined, although at times a spindle, round or oval shape may be made out even in hematoxylin and eosin preparations. The nuclei may be small or large, round, oval or elongated. The amount of chromatin present may also vary tremendously, although the nuclei are usually vesicular with finely divided chromatin. Many of the cells are multinucleated with large amounts of cytoplasm, these representing true tumor giant-cell forms. Many of them have, instead of multiple nuclei, a single, but large and multilobulated nucleus. Mitotic figures are frequently seen.

With Cajal's gold sublimate stain many of the tumor cells exhibit a spindle-shaped bipolar body, but very many of them have round, oval, pear-shaped unipolar forms, while still others show multipolar prolongations resembling those of adult astrocytes.

Although stains for tigroid bodies and nerve fibrillae sometimes disclose these structures within cells appearing in the tumor substance, these cells are not part of the neoplasm and in all likelihood are evidence of the remains of the invaded brain tissue. Preparations made with phosphotungstic acid hematoxylin, or ethyl-violet orange-G show occasional delicate fibrils taking the specific stains for neuroglial fibrils.

In their monograph on tumors of the glioma group, Bailey and Cushing list five gliomas as transitional which are, therefore, excluded from the series of 254 classified gliomas. In a later paper Bailey[13] describes two of these as a "sort of cross between a spongioblastoma multiforme and ependymoma." Of the other three, one looked "in part-like a ganglioneuroma" and in another part the "structure looked like a medulloblastoma." A fourth resembled in some parts a spongioblastoma and in others an astrocytoma. The fifth was "histologically a benign growth, composed of spindle-shaped cells in which numerous neuroglial cells were differentiated." They also had 17 gliomas which they excluded as atypical —not apparently because of several different types of cells in the same tumor, but because all the cells in each tumor failed to fall into the already existing groups.

In a relatively small series of cases reported by Davidoff and

Ferraro, five tumors occurred which would belong among Bailey's transitional gliomas. This relatively high incidence may be explained by the fact that their tumors were all obtained postmortem so that the entire brain and neoplasm were available for study in each case. This fact seems very important since in different areas of the same tumor the histologic structure may vary quite markedly. Not only did they find large areas in which the character of the growth was entirely different from the fundamental type constituting the chief part of the tumor, but in other cases, less typical spots, also, however, showing a predominance of cells different from those making up the main mass of the growth.

Their combined tumors consisted of a spongioblastoma multiforme with a large area disclosing the structure of a primitive medullo-epithelioma; two cases also fundamentally spongioblastoma multiforme with areas of varying size typical of astrocytoma; another tumor in which in the midst of a spongioblastoma, an area of probable oligodendroglioma was found; and finally, an ependymoma in which typical areas of spongioblastoma multiforme were located.

This inclusion of cell types from the most primitive to the most differentiated cells of the glioma series seems to indicate that the spongioblastoma multiforme is a tumor including, more than any of the other tumors of the glioma group, cells of various developmental stages, a fact which they believe may also account for the great variation in the cells regarded as typical of the uncomplicated spongioblastoma multiforme. It is for this reason also that Davidoff and Ferraro would regard the name *gliablastoma multiforme* as more appropriate for this type of tumor.

8. (b) *Spongioblastoma Unipolare.* Unlike spongioblastoma multiforme, the spongioblastoma unipolare is a rare tumor. It is clinically fairly benign, and morphologically is believed to arise from cells more advanced in their differentiation toward the adult state than the spongioblastoma multiforme.

The primitive spongioblasts in the embryo, as stated above, stretch between the external and internal limiting membranes; the nuclei, lying somewhere between, give rise to a bipolar aspect of the cells. Out of some of these, the bipolar spongioblasts arise by simple division. The next step is an atrophy of the internal pro-

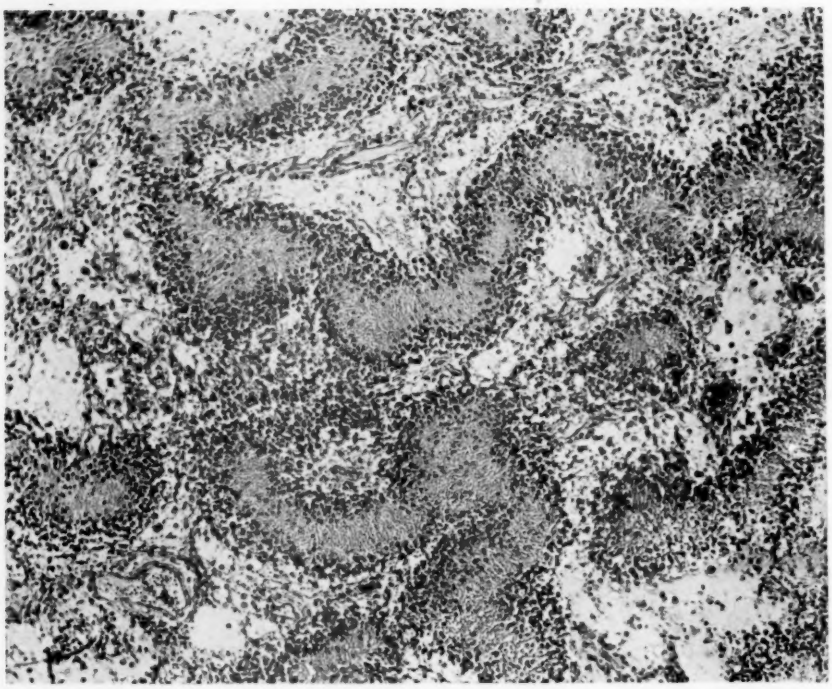

Fig. 35. Spongioblastoma unipolare. Rows of spongioblasts with the unipolar processes directed towards each other. X60. Haemotoxylin and eosin stain. (Davidoff and Ferraro[75], Fig. 22.)

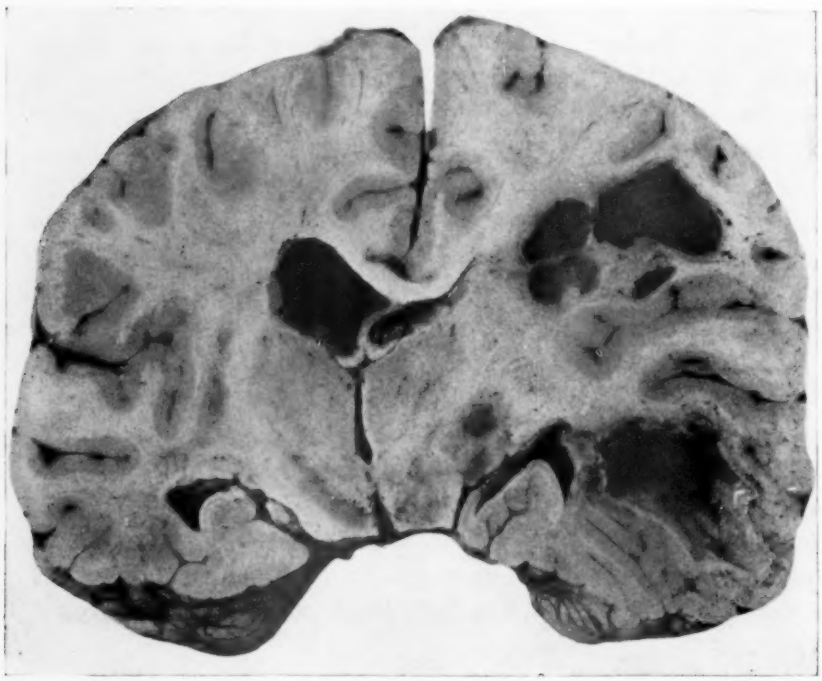

Fig. 36. The gross appearance of an astrocytoma showing marked cystic degeneration. (Davidoff and Ferraro[75], Fig. 15.)

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cess which results in Castro's "dislocated epithelial corpuscle" or the unipolar spongioblasts. Among Cushing's 568 classified gliomas (Jan. 1, 1927) only 12 tumors of this type were present.

Microscopically these tumors are usually firm, fibrous and may appear largely encapsulated. But for their intracerebral location they might be mistaken for tumors of meningeal or perineurial origin. Indeed, both Josephy[123] and later MacPherson,[138] as Bailey pointed out, were under the erroneous impression that they were dealing with a "central neurinoma" in their respective cases.

Microscopically, the tumors consist of bands of cells arranged in rows with the nuclei turned toward the outside and the unipolar processes directed toward the center which results in a great tangle of fibers (Fig. 35). This is appreciable even with ordinary stained preparations but is best brought out by phosphotungstic acid hemotoxylin. In a haemotoxylin-eosin preparation, especially when understained with hemotoxylin, these areas resemble very closely the pseudo-palisade formations which appear in spongioblastoma and multiforme and which are, as adequately shown by Bailey and Cushing, simply a result of a degenerative process. In the latter, however, the cells surrounding the clear area are in various stages of degeneration—most of them showing a marked degree of pyknosis. Finally, fat preparations show a large accumulation of fat droplets in the centers of the pseudo-palisade formations, a change which does not occur in the characteristic formations of the spongioblastoma unipolare. The cell processes of the unipolar spongioblasts stain only faintly with phosphotungstic acid hemotoxylin as well as ordinary hemotoxylin when the sections are overstained. By the Cajal gold sublimate method, however, they may be impregnated, especially when isolated in the loosely arranged tissue between the bands of closely packed cells. In these "interacinous" spaces, numerous bipolar spongioblasts and a moderate number of astrocytes are seen.

Mitotic figures are rarely encountered, but incomplete amitotic division is quite frequently observed. This, like most other gliomas, shows large areas of degeneration, cyst formation, hemorrhage, etc. The blood supply is not rich. The thin-walled sinuses show practically no tendency to proliferation of their adventitial cells.

9. *Astroblastoma.* These are soft, spongy infiltrating tumors with considerable tendency toward degeneration. They are not particularly rapid in their growth. Bailey and Cushing record one case with a history of 15 years' duration. These authors had a total of 13 astroblastomas in their large series—showing that the growths are relatively rare.

Histologically they are loosely constructed tumors with fairly large, more or less triangular cells which resemble ganglion cells. This resemblance has led them to be called neuroblastomas (Greenfield), but stained with phosphotungstic acid haemotoxylin, or, better, with Cajal's gold chloride-sublimate for neuroglia, the strong processes ending in "sucker feet" against the blood vessel walls can be demonstrated. The tumor cells are seen dividing amitotically, but mitosis is seldom apparent. Although they are histogentically from the astroblast stage, adult astrocytes as well as spongioblasts are seen among the typical cells of the tumor.

10. *Astrocytoma.* (a) protoplasmic; (b) fibrillary. Astrocytomas like spongioblastomas multiforme make up from 40 to 60 per cent of all gliomas. They are clinically relatively benign growths.

Grossly they are infiltrating and also quite prone to degeneration. Cyst formation is quite common (Fig. 36). The tumor may present a peculiar grayish avascular appearance resembling closely the color of white cerebral substance (Fig. 37). Its consistency, however, is soft and elastic when compared with surrounding brain tissue.

Microscopic preparations even by ordinary stains are quite characteristic of these tumors. The cells are far less numerous than in spongioblastoma multiforme (Fig. 38). The nuclei, scattered evenly over the preparation, are quite large in size and vesicular. The cytoplasm is considerable in amount and ends in long processes which lose themselves in the meshwork of intercellular tissue which consists to a large extent of these intertwining prolongations from neighboring cells. Mitotic figures are rarely seen, but occasionally incomplete amitotic division is evident. The blood vessels are for the most part delicate, thin-walled capillaries, although occasionally a large, perhaps thrombosed, vessel is found, especially in the midst of a necrotic area. Connective tissue is confined to the walls of these vessels.

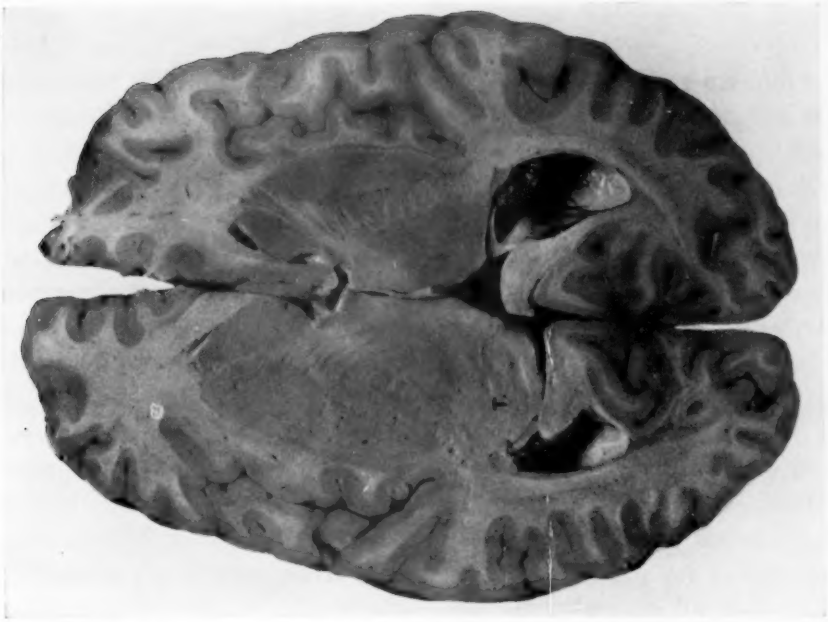

Fig. 37. An astrocytoma "T" in the left pulvinar region showing its close resemblance to normal cerebral tissue. (Davidoff and Ferraro[75], Fig. 16.)

Fig. 38. Astrocytoma. Loosely constructed tissue with large spider-shaped cells. X60. Haematoxylin and eosin. (Davidoff and Ferraro[75], Fig. 12.)

The most characteristic appearance presented by the astrocytoma is obtained by Cajal's gold sublimate preparation. Here the cytoplasm and its prolongations are impregnated and show the astrocytic character of the cells (Fig. 39). These tumor astrocytes differ from normal ones in the coarseness of their prolongations and their greater size. Occasionally astroblasts showing one heavy sucker-foot upon a vessel wall, and only indications of other prolongments are seen. Here and there a bipolar spongioblast is demonstrable.

Although he says that transitions between protoplasmic and fibrillary astrocytomas are common, Bailey makes a subdivision between these two types, depending upon the variety of cells in predominance. Apparently he has had some examples of pure types, for he describes the protoplasmic astrocytomas as tumors in which no neuroglial fibrillae can be demonstrated. Among the six astrocytomas in the series of Davidoff and Ferraro none occurred in which no neuroglial fibrillae were present. Five of them, however, showed a predominance of protoplasmic astrocytes, while the sixth was made up chiefly of fibrillary cells.

Nerve cells and neurofibrillae are present in small numbers throughout these tumors, but the slow growth and infiltrating character of the neoplasm undoubtedly account for the presence of nervous elements in the tumor substance as remains of brain tissue which has accommodated itself to the presence of the neoplasm and has continued to function, or at least to survive.

The source of the protoplasmic astrocytomas has in all probability been properly taken by Bailey and Cushing to be the adult protoplasmic astrocyte which, as we know, can divide simply or even mitotically under an impulse sufficiently provocative. It is also known, however, that protoplasmic neuroglia may change into the fibrillary type. Davidoff and Ferraro therefore disagree with these authors who believe that "the fibrillary astrocytoma is perhaps not a blastoma at all but of the nature of heterotopia," and feel that the source of both varieties of astrocytoma is the same, namely, the adult astrocyte.

The presence of spongioblasts in these tumors may be explained by a process of dedifferentiation. That some evidence exists to prove that this takes place may be seen from the experience of Dr. Cushing. He found that certain tumors, clinically and morphologi-

cally astrocytomas, regrow rapidly after an incomplete surgical removal and prove, at a second operation, to have changed their character to spongioblastoma multiforme.

11. *Oligodendroglioma.* In their monograph on tumors of the glioma group Bailey and Cushing speak of a peculiar type of cellular tumor which they believe to be made up of oligodendroglia cells, on the strength of the resemblance of these cells, by ordinary stains, to oligodendroglia. They describe the neoplastic cells as having "spherical nuclei with a heavy chromatinic network, and surrounded by a ring of cytoplasm which stains very feebly by ordinary staining methods (Fig. 40). Between the cells is an indefinite material which stains neither for neurofibrillae, neuroglia nor connective tissue. This material may give the growth somewhat the appearance of the cross-section of a plant." In a later paper Bailey reports that 12 such tumors had occurred in Cushing's series up to January 1, 1927. In the literature he was able to identify only two others—that of Roussy, Lhermitte and Cornil (Gliome à petite cellule) and that of Landau.

Clinically the Boston authors find these neoplasms slow growing and tending to calcification. Grossly they give the appearance of encapsulation and often attain so large a size that their removal is well nigh impossible.

More recently (1929) Davidoff and Ferraro have reported another example of this type of growth. Their tumor consisted of uniform small round cells with scanty cytoplasm and small round, dark nuclei. In haemtoxylin and eosin preparations a clear halo was present around the nucleus resembling in appearance the swollen oligodendroglial cells of Penfield. The Cajal gold sublimate preparations show these cells as round bodies taking the gold fairly well, and among them both spongioblasts and astrocytes may be seen. The processes of the latter, as Bailey has pointed out, form the delicate intercellular fibrillae. Mitotic figures are seldom seen.

Schaltenbrand and Bailey,[172] in their study of the perivascular piagliamembrane of the brain, have noted that the degree of perivascular connective tissue proliferation differs with the type of glioma. "The most undifferentiated tumors—medulloblastomas and neuroblastomas—show a diffuse infiltration by connective tissue. And the most differentiated gliomas—astrocytomas, astroblas-

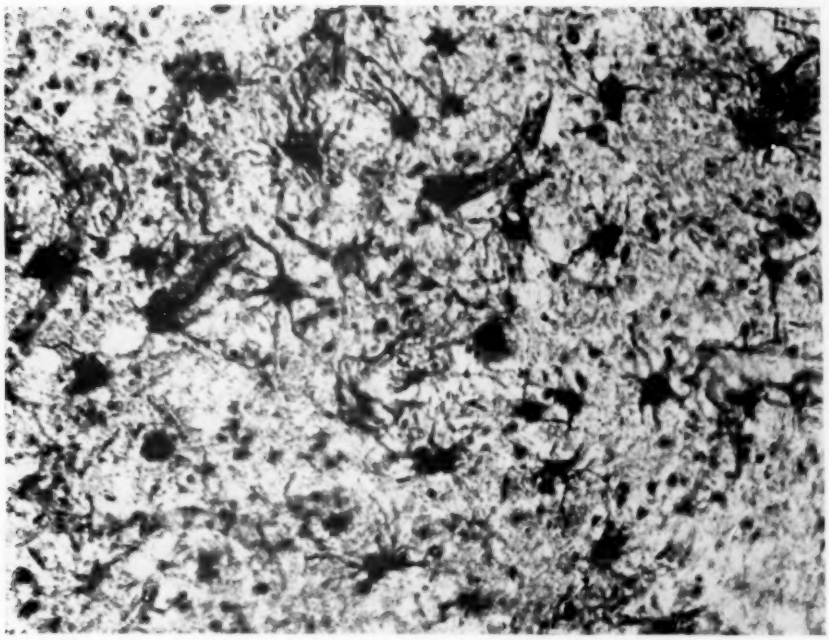

Fig. 39. Astrocytoma protoplasmica. Typical astrocytes. X250. Cajal's gold-sublimate preparation. (Davidoff and Ferraro[75], Fig. 17.)

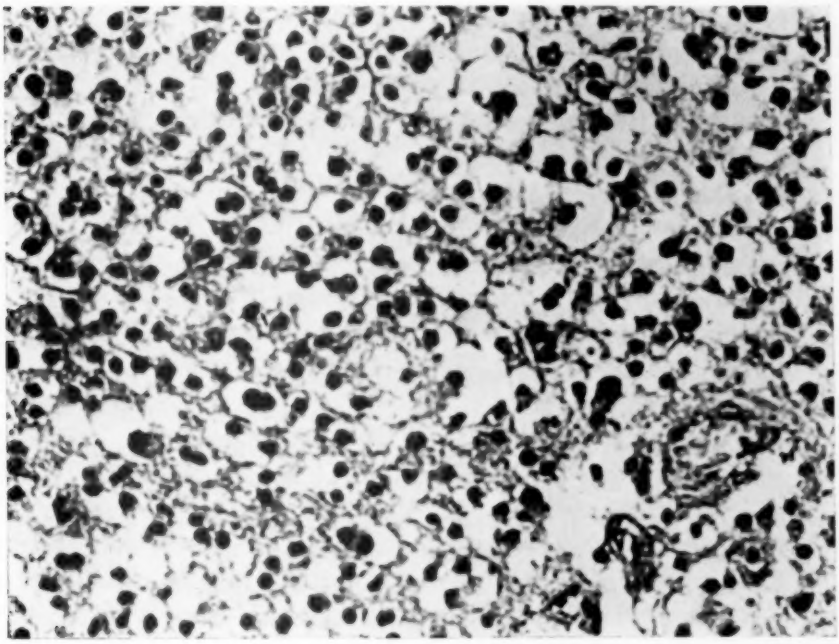

Fig. 40. Oligodendroglioma. The nuclei are small and round, and the cytoplasm unstained. X372. Haemotoxylin and eosin stain. (Davidoff and Ferraro[75], Fig. 43.)

tomas, and oligodendrogliamos—have a well-defined *limitans gliae* and the connective tissue is strictly confined to the blood vessel walls. The ependymomas, spongioblastomas unipolare, and spongioblastomas multiforme occupy a middle place. This increasing control of the connective tissue with the increasing differentiation of the glioma formation may be detected in the manner in which the intraneoplastic cyst walls are organized. In the astrocytomas, oligodendrogliomas, and spongioblastomas unipolare, the cyst walls consist almost exclusively of glia tissue, while in the spongioblastomas multiforme, the medulloblastomas, and neuroepitheliomas, that is, the undifferentiated tumors, they are organized largely out of fibroblasts.

"The disclosure of this relation between glia fibers and connective tissue among the gliomas has a certain significance in the prognosis of these conditions. As Bailey and Cushing have shown, the average duration of life is markedly different among the different gliomas. The more embryonic a tumor, the more, generally speaking, malignant it is; also the more embryonic a tumor, and the less its glia fiber formation, the greater and more diffuse its connective tissue formation. The quantity and distribution of the connective tissue, therefore, is, to a certain extent, a criterion for the malignancy of the growth and for the expectancy of life of the patient."

12. and 13. *Neuroblastoma and Ganglioneuroma*: Tumors consisting of actual nerve cells or their embryonic precursors are extremely rare, especially in the central nervous system. Most of those that do occur are associated with the peripheral or sympathetic nervous system. The tumors above described under the name of medulloblastomas have been erroneously called neuroblastomas. The medulloblastomas are much more immature than the neuroblastomas although they presumably arise from cells which have the potentiality to become nerve cells. Neuroblastomas, whether consisting chiefly of cells in the apolar or unipolar stage, may be distinguished by the appearance of their nuclei, the presence among them of neurones, and the demonstrability of beginning neurofibrillae, which take silver impregnation readily, but do not stain with phosphotungstic acid haemotoxylin or ethyl-violet orange-G.

Ganglioneuromas arise from more mature nervous elements and consist partly of glial tissue, and for the rest, of true nerve cells.

These have true neurofibrillae and tigroid substance. The nuclei are typically large, vesicular, round, or oval with the large nucleolus of the adult neuron. The axone may or may not be myelinated.

Papilloma. Papillomatous tumors of the brain arise from the *tela choroidea,* more commonly of the fourth, but also of the lateral ventricles. They are again very rare tumors, and in the literature are often confused or misnamed. Davis and Cushing[76] have been able to identify about 20 undoubted cases that have been reported. To these they themselves added six cases from Cushing's great collection of brain tumors. The growth may be identified even grossly owing to its tufted and wart-like surface (Fig. 41). The two cases of Davis and Cushing, occurring in the lateral ventricles, were associated with large enveloping cysts. These cysts the authors believe arose from the secretion of cerebral fluid by the tumor cells which, owing to the growth of the lesion and its imprisonment by the surrounding nervous tissue, was no longer able to pass into the cerebral fluid stream of the ventricles.

Microscopically the tumor is characterized by papillae covered by typical cuboidal cells of the choroid plexus type, arranged in a single layer upon a connective tissue core as in the normal plexus (Fig. 42). Mitachondria surrounding the nuclei may be demonstrated by the use of proper methods of fixation and staining. No glial fibres or blepharoplasts are present. The latter can serve as a valuable differential point between the papillomas arising from the choroid plexus and tumors of ependymal origin which, on rare occasions, present villi that project into the ventricles. In the latter tumors another differential point is the glial character of the cores of the ependymal papillae which arise from the sub-ependymal glia, whereas, the choroid plexus villi are supported on connective tissue.

Blood Vessel Tumors and Malformations of Blood Vessels Giving Tumor Symptoms

The entire literature on the subject of tumors arising from cerebral blood vessels was recently reviewed in a monograph by Cushing and Bailey.[62] This very complete study is based upon a series of 29 personally observed cases. When it is considered that the whole series of Dr. Cushing's verified tumor cases at the time of

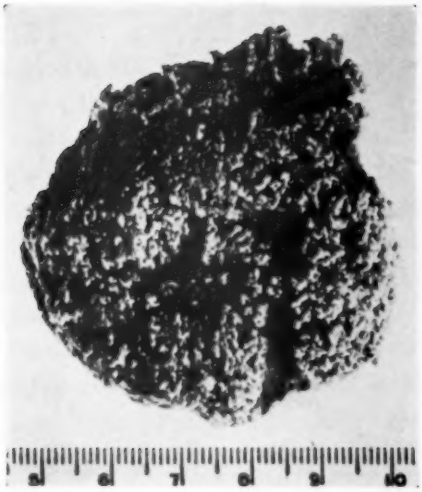

Fig. 41. Papilloma of the choroid plexus. The villous processes are, even grossly, characteristic of the growth. (Davis and Cushing[76], Fig. 3.)

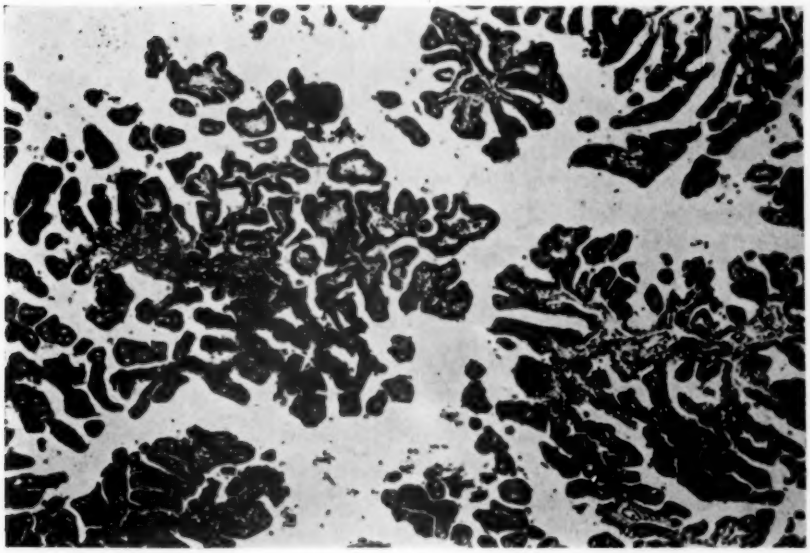

Fig. 42. Papilloma of the choroid plexus, showing the papillomatous character of the growth. X80. Phosphotungstic acid haemotoxylin. (Davis and Cushing[76], Fig. 4.)

their report numbered 1,522, the rarity of blood vessel tumors is obvious. The book is divided into two parts. The second part of the book is concerned with the true neoplasms arising from the cerebral blood vessels—the hemangioblastomas which are largely cerebellar in location. The first part is devoted to the vascular malformations, chiefly cerebral, including (a) telangiectasis of the cerebral vessels,—which seldom give rise to tumor symptoms; (b) venous angiomas; (c) arterial angiomas.

Angioma Venosum. The last two varieties are distinguished from each other clinically by the absence of a bruit over the cranium in the venous, and its presence in the arterial variety. This, in addition to the appearance at operation, is the chief criterion for diagnosis. As disclosed on the operating table, the venous angioma is seen to consist of very wide-lumened, thin-walled, coiled blood vessels with very dark blood seen through the vessel walls (Fig. 43). Since incision would invariably lead to fatal hemorrhage, none have been verified by surgical specimen nor have any of Cushing's cases come to autopsy.

Microscopic sections from Buckley's[32] case showed wide-lumened, irregular shaped vessels with an intima of a single layer of endothelium, a media of sparse muscle fibers often separated from each other by hyaline degeneration, and an adventitia consisting of a few wisps of fibrous tissue. The tissue between the vessels consisted of degenerating cerebral substance.

Calcification must frequently take place in the walls of these vessels since the tumor can often be detected by local shadows in the X-ray. A dozen or more cases have been reported in the literature associated with vascular naevi of the face.

Angioma Arteriale. The angiomas that are not made up entirely of venous elements are usually both venous and arterial. They are the circoid and racemose arterio-venous aneurysms of the literature. Although the term *angioma arteriale et venosum* would more accurately describe them, Cushing and Bailey believe that the shorter name *angioma arteriale* is sufficiently distinctive. These lesions may arise as a result of some stimulation, like a severe blow upon the head, or a change of physiological state, such as takes place at puberty, in the presence of an already existing venous angioma. It is conceived that at such a critical time direct connection, that is,

without the intermediation of capillaries, is established between the veins and neighboring arteries, and thus, some of the abnormal veins become "arterialized." Other cases undoubtedly exist which are primarily arterial as well as venous and also become aneurysmal at a later date.

Here as in the case of the venous type, the most striking appearance of the lesion is obtained at operation upon the living patient. The commonest picture is that of the racemose variety. "The central portion of the lesion is a fairly well circumscribed vascular area, composed of manifold, partly thinned and partly thickened vascular trunks forming an inextricable coil of dilated and sinuous vessels of varied caliber (Fig. 44), through which the arterial blood passes from enlarged entering arteries directly into one or more greatly dilated veins of exit, usually with the production of an audible bruit." Dandy[70] prefers to call these the "plexiform angiomas."

An uncommon variant of this lesion is the *angioma arteriale serpentinum* which consists of practically only one very tortuous, long, distended arterial trunk all coiled up into a single mass.

Since the chief blood supply of the brain is through the pial vessels, the angiomata are usually superficial. But they often extend centrally from the surface and may even reach the ventricle, although the deeper portions gradually narrow down to a point.

The first good histologic description of an *angioma arteriale* was by Emanuel[83] in 1899, and very little has been added to the histology in the case reports since his time. He called attention to the imperfect formation of the media of the tumor blood vessels and a tendency to form leiomyomatous nodules in this layer. The intima tends to show proliferation of fibrous tissue and endothelium in nodular form. The elastica is occasionally absent, and often poorly developed. The vessels frequently show aneurysmal outpocketings. Hyaline, fatty, and calcareous degeneration may occur in the vessel walls. Cushing and Bailey had only a single case of their own for histological examination. They were able to study, however, material from one case of Olivecrona and one of Dunn. They stress a point which they consider very important in the differentiation of these congenital malformations from the true neoplasms of blood vessel origin—namely, the presence of glial tissue

Fig. 43. Angioma venosum. Drawing elaborated from Dr. Cushing's operative sketch. (Cushing and Bailey[62], Fig. 5.)

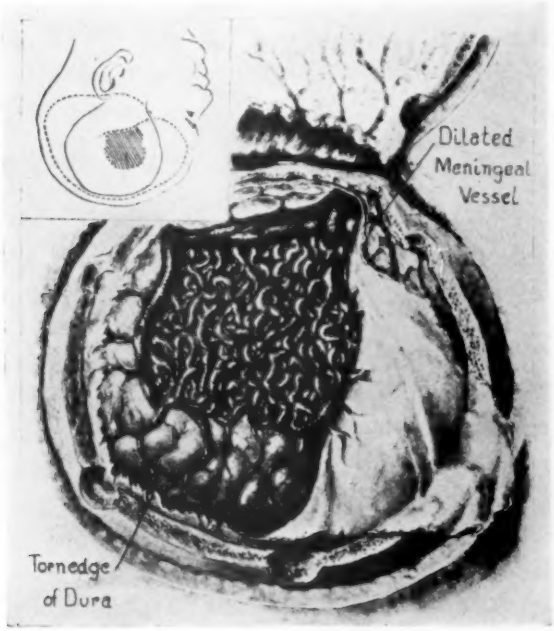

Fig. 44. Angioma arteriale. Drawing elaborated from immediate post-operative sketch. (Cushing and Bailey[62], Fig. 27.)

between the blood vessels indicating degenerating cerebral tissue between the abnormal vessels. This is absent in true neoplasms of blood vessel origin.

Hemangioblastoma. Beginning his study with two cases of cystic tumor of the cerebellum, then searching the literature for other examples, Arvid Lindau,[134] the Swedish pathologist, first proved (1926) the hemangiomatous nature of the tumors associated with some of these cysts, then showed the frequent association of these cystic tumors with angiomas of the retinae (v. Hippel's disease) as well as frequent hemangiomatous and cystic tumors of the pancreas, kidneys, epididimi and other parts of the body. He thus, by a single brilliant stroke, cleared up the confusion that existed concerning the occasional solitary, circumscribed, vascular, usually cystic tumor, occurring in either of the cerebellar hemispheres, which have been variously diagnosed as sarcoma, vascular glioma, or left unclassified.

His summary of the characteristics of these tumors is as follows:

"I. Relatively small size.

II. Cortical or subcortical position in the lateral and posterior aspect of the cerebellum.

III. Sharp demarcation of the tumor from the brain substance.

IV. Microscopic findings:

(a) Capillary hyperplastic hemangioma.
(b) Cavernous spaces.
(c) Pseudoxanthomatous cells.
(d) Small giant cell.
(e) Plasmatic transudate.

The occurrence of this type of tumor, though obviously rare, is proving nevertheless, to be more common than one might think. In Lindau's monograph, for example, which was published in 1926, 15 cases are cited, including Lindau's own as well as the cases from the literature. Within a year he was able to report upon four additional cases.[135]

Among Dr. Cushing's cases 11 examples of cerebellar "hemangioblastoma" are present. Three of these were autopsied and showed no complications outside of the cerebellum. Another one which had

been successfully operated was described in detail by him and Bailey.[61] This patient had an associated hemangioma of the retina, and also gave a history to the effect that his father and his father's sister had died of cystic tumors of the cerebellum. This case figured as case XIX in the monograph by Cushing and Bailey.

It is their belief that Lindau saw a higher percentage of hemangiomatous lesions among his cystic tumors of the cerebellum, and that the percentage of cystic lesions among his hemangioblastomas was greater than is probably true in a general average of cases. Among Cushing's 67 cysts of the cerebellum, only four were hemangiomatous, and these four were the only cysts among his 11 hemangioblastomas. Of the other seven tumors, however, the cystic portion made up only a small part of the lesion. Cysts were present in three. The remaining four were solid tumors.

A closer examination of the typical microscopic appearance of these tumors discloses the following:

Low power examination shows the growth to be characterized by the presence of many smoothly-lined lacunae of varying sizes with richly cellular tissue in between. With slightly higher magnifications the number of spaces proves to be much greater and definite endothelium is seen lining them. Some of these spaces are filled with red blood corpuscles while others are entirely empty. Some of the larger spaces are actually covernous in character and possess, outside of the endothelium, a condensation of collagen fibers.

The endothelial cells of the larger vessels are flat with elongated nuclei as seen in ordinary blood vessels. In the smaller tumor capillaries the lining cells have rounder, larger, paler nuclei which frequently protrude into the capillary lumina and tend to obliterate them.

The cells lying between the capillaries make up a considerable part of the tumor. They show no definite cell boundaries and have fairly large, oval, pale nuclei with evenly distributed scanty chromatin. The nuclei are moderately varying in size and contain among them some that are several times larger than the average (small giant cells of Lindau).

With fat stains most of the cells show coarse, discrete, fat globules, which Lindau thinks resemble xanthoma cells.

Areas of homogeneous, faintly staining, colloid-like material are

occasionally seen—representing in Lindau's opinion, evidence of insufficient blood supply.

Connective tissue stains show collagen fibers in the walls of the larger sinuses and occasional fibers between the capillaries. No glia fibrillae are demonstrable within the tumor, and no astrocytes or spongioblasts are seen in preparations made with Cajal's gold sublimate impregnation. It is this absence of glial elements which Cushing and Bailey stress as the chief differentiating point between these true tumors of blood vessel origin and the so-called angiomas above described. As far as the vessels go, capillary, venous or arterial types may be present in both the angiomas and the hemangioblastomas.

Granulomas

Tuberculoma. Statistics regarding the frequency of tuberculosis of the brain in comparison with other brain tumors vary so widely, that temporal, spatial and other factors will have to be invoked to explain away some of these discrepancies. In 1893 Dr. M. Allen Starr[182] presented a series of 300 brain tumors occurring in individuals under 19 years of age, among which 152 (50.8 per cent) were tuberculomas. Among an equal number of adults, 41 (13.6 per cent) were tuberculomas, making a total of 32.2 per cent for all ages. At the other extreme stand the figure of Van Wagenen[194] who, among 1,000 cases of verified tumors in Cushing's series, found only 14 (1.4 per cent) tuberculomas. Among 860 adults only one per cent showed tuberculomas, and among the 140 children 3.5 per cent. Both extremes are supported by other reports, although the high incidence appears in the older, and the low in the later literature. There is no special reason to assume that more recent studies are more accurate, although something should be allowed for improved histologic verification of gross lesions. However, the chief reason for the difference in the frequency of tuberculous tumors of the brain, now and 40 years ago, may be due to the decrease in tuberculosis generally. It is probably also true that Starr's cases may have included the incidental finding of tuberculomas of the brain in patients dying of tuberculosis, who might never have presented themselves at a neurosurgical clinic for brain tumor symptoms. Moreover, Cushing's patients

were predominantly adult, and, tuberculomas are notoriously frequent among children—a point on which even the most divergent opinions meet.

In any case, tuberculomas of the brain, in this country at least, have become rare instead of common cerebral tumors.

Clinically, tumor symptoms may arise from local thickening of a tuberculous meningitis which eventually involves the underlying brain, the so-called tuberculosis *en plaque,* or focal meningoencephalitis. This may give focal, but seldom general pressure symptoms. More commonly, tuberculomas occur within the cerebral substance and cause true tumor symptoms.

Although the latter type is usually spoken of as "solitary tubrecle"—it is, as a matter of fact, a conglomeration of small tubercles, embolic in origin, which together, form a solitary, irregular mass. This conglomerate mass is usually roughly spherical and discrete. It may vary from a few millimeters to several centimeters in size. Rarely, fusion of many isolated foci may result in a granuloma involving the greater part of a cerebral hemisphere. The commonest location of tuberculous granulomas seems to be in the cerebellum or brain stem. The lesions are single in the majority of cases.

On gross section through a tuberculoma, one sees a discrete yellowish, crumbly tumor the external edge of which is firmer than the center, grayish red in color, which contains, as seen microscopically, living tubercle bacilli and new tubercles. The caseation necrosis in the center may go on to liquefaction and pus formation. Less frequently subsidence of the tuberculous process may supervene and fibrosis with calcification take place as in other parts of the body. During the active stage of the lesion edema of the surrounding brain tissue may aggravate the tumor symptoms.

Syphiloma or Gumma. If the incidence of tuberculosis of the brain associated with brain tumor symptoms is decreasing, this is certainly also true of syphilis. In this disease more than in the former one, moreover, diagnoses even today are still being made with insufficient confirmatory evidence. Although the modern neurosurgeon is seldom deterred from operating upon a patient with brain tumor symptoms simply because of a positive blood Wassermann reaction, Cushing's series of some 1,500 cases contain hardly more than a dozen syphilomas. Still Oppenheim, Gowers,

Bruns[31] and other authorities of their generation believed that syphilis is the commonest cause of brain tumor symptoms in adults. The difference again, is undoubtedly partly due to a decrease in the incidence of the disease. But the tendency to ascribe to syphilis a series of symptoms which apparently temporarily improve under anti-syphilitic treatment, without other confirmation, is also being abandoned.

While tuberculomas of the brain are commonest during childhood, cerebral syphilomas occur almost exclusively in adults. Again unlike the former, the luetic granulomas are chiefly located above the tentorium, and near the brain surface, instead of within the brain substance. They seldom reach a very large size, practically never attaining dimensions above three to four centimeters in diameter.

The tumor consists of pinkish-gray, vascular tissue typical of gumma formation, as seen elsewhere in the body. Necrosis with overwhelming repair by fibrous tissue takes place as the disease advances. In late stages not only the brain, but the meninges and bone may be involved in this fibrosis. One seldom sees the softening and purulent degeneration in gummas as so frequently observed in tuberculomas. On the other hand, vascular changes are much more marked in the neighboring brain in syphilitic patients. Histologically tuberculomas and syphilomas are distinguishable by the greater amount of fibrous tissue in the latter. It is characteristic to find that caseous necrosis in the tuberculous lesion results in complete dissolution of all formed elements, while in the syphilitic lesion all cellular elements disappear, but the connective tissue remains. In spite of this difference, occasionally, specific stains for the tubercle bacillus or spirochete are the only certain way of differential diagnosis.

Actinomycoma. These are very rare granulomas in the brain, and when present are usually associated with actinomycosis elsewhere in the body. Howard[117] reported one case apparently primary in the brain, and was able to find 18 other cases reported in the literature. The appearance of the lesion is familiar to those who have seen actinomycotic abscesses elsewhere. It is made up of grayish green, very putrid smelling, thick pus. On smear the

characteristic thread-like branching organism is easily demonstrable, sometimes showing the typical radiating arrangement.

Parasitic Cysts

Cysticercus Cellulosae. The embryo of the hog tape worm (*taenia solium*) has a special predilection for the central nervous system. Bruns cites 72 cerebral complications in 87 cases of infection with this parasite. Such infections are much less common at the present time when pork is carefully inspected and not so likely to be eaten incompletely cooked. It is still, fairly prevalent, however, in countries with large peasant populations.

In the central nervous system the larvae may be found in the meninges, cortex, or ventricular wall. The bladder-like structure of the parasite with the invaginated head and the crown of hooklets are perfectly characteristic. The pale, homogeneous, shiny appearance of the membrance with a wavy external and smooth internal surface contour is well to keep in mind, since the so-called *cysticercus racemosus,* which is a headless variety, without scolex or hooklets, is fairly common in the brain, and can be identified only by the appearance of the membrane.

This latter variety is especially likely to appear on the base of the brain where the peculiar polyp-like structure may attain, according to Aschoff,[4] a length of 25 cm.

The lesion may become very chronic and the tissues of the host form a thick connective tissue capsule. The surface next the parasite usually shows rows of very large giant cells. The parasites may die and become calcified. Within the capsule, among the fat, and calcium granular bodies, hooklets may still be identified after the death of the organism.

Echinococcus or Hydatid Cyst. As in the case of the *taenia solium,* the embryo of the *taenia echinococcus,* the dog tapeworm, is also more dangerous than the adult worm. It may also invade the brain in the human host where it sometimes reaches a very large size. It tends more to invade the brain substance than the meninges or ventricles. The cyst membrane is composed of a white, lamellated, tough layer with an inner delicate cellular layer. The contents are watery and possess the typical hooklets of the parasite. If the latter dies the contents become gelatinous, gray, or

yellowish-gray. The active hydatid cyst contains daughter cysts in its capsule which in turn give rise to granddaughter cysts and so on, almost *ad infinitum,* all contained in the same mother membrane. This slowly but steadily growing lesion may absorb the overlying bone and appear under the scalp.

Carcinoma

Carcinoma of the brain is usually secondary to carcinoma elsewhere in the body. The primary seats may be in the breast, bronchi, adrenals, prostate, bladder, colon, etc. The secondary nodules in the brain are frequently multiple and occur within the cerebral substance. They often show cystic degeneration.

The epithelial tumors, already discussed, arising from the choroid epithelium, the ependyma, and craniopharyngeal rests may take on malignant characteristics. Such primary carcinomas of the brain are quite rare, but have been described by Ziegler, Bielschowsky and others. The most recent report of a case is by von Lehoczky[201] who summarizes the literature carefully. The tumor in his case arose from the choroid epithelium. There was a tendency to papillomatous formation as in the benign tumors of this origin. The connective tissue cores, however, were very insignificant and the cellular elements much in excess. Many of the cells were in active mitosis and the nuclei showed great variation in size and shape.

Adenomas of the pituitary may also become malignant, a transformation which Cushing[48] regards as analogous to the malignant changes in thyroid adenomas.

Sarcomas

As in the case of carcinomas, the sarcomas of the brain are usually metastatic. Of these the commonest, perhaps, are the melanosarcomas which have their primary seat in the retina and in pigmented naevi of the skin. Other types of sarcomas may metastasize to the brain from the lungs, the testes, the bones, etc.

In the wake of better histologic methods, and increased knowledge of brain histogenesis, the former place of importance given to sarcomas among primary brain tumors has fallen to the tumors of the glioma group. It is now recognized that true primary sarcomas

of the brain are very rare lesions. Even the so-called "sarcomatosis" of the meninges has been shown to be an invasion by cells of glial origin, the medulloblasts of Bailey and Cushing.

A few years ago Fried[92] reported a rare case of sarcoma, probably primary in the brain, one of the very few in Cushing's material. This patient died in four months after onset of diffuse, severe symptoms referable solely to the brain. At autopsy, only a tiny nodule was observable in the first left temporal convolution. This nodule proved microscopically to consist of uniformly small round cells in active mitosis. No evidence of glial origin of these cells could be deduced from specially stained preparations. In addition to the nodule, there were present throughout the grossly normally appearing brain, similar tumor cells in the adventitia of the blood vessels and in the perivascular spaces, as well as scattered among the parenchymal cells. Fried looked upon this as a primary sarcoma of the brain arising from the adventitial cells of the blood vessels.

Later Connor and Cushing[39] reported two additional cases which on gross examination of the brain showed no evidence of tumor, but histologically proved to have widespread invasion of the meninges by tumor tissue. The first case was probably one of sarcoma but the second one was a medulloblastoma diffusely spread throughout the meninges without a primary tumor nodule.

Miscellaneous Tumors

Cordoma. Vestiges of the upper end of the notochord may give origin to tumors of the brain, located usually in the interpeduncular space. These tumors are usually malignant and may reach a large size. They are extremely rare especially in the brain. In 1912, Jeliffe and Larkin[122] were able to find only six examples reported in the literature in addition to their own case. They presented very fine colored drawings of the microsropic appearance of their tumor, which is very similar to sections from the notochord of embryos.

Lipomas. These very rare growths usually consist of small fatty nodules containing bone and arising from the base of the skull. Cushing mentions a larger form occurring on the upper surface of the corpus callosum. One case reported by Hecht[105] had a lipoma within the sylvian fissure. This growth was apparently symptomless, and was found accidentally at post-mortem in a woman who

died of puerperal sepsis. The tumor was "plum" size, discrete, and consisted of a coarse stroma of connective tissue and blood vessels with intervening fat cells.

Enchondroma. Cartilagenous tumors of the brain may develop from the meninges or choroid plexus. One variety arising from the cartilagenous vestige of the *Clivus Blumenbachii* is located near the pituitary fossa. Cartilage may also be found in teratomas occurring in the hypophyseal region. Pure enchondromas are exceedingly uncommon.

(Part III will appear in THE PSYCHIATRIC QUARTERLY for October, 1930)

FACTS AND FANCIES IN HEART DISEASE*

BY ROBERT ABRAHAMS, M. D.

If I were asked for an excuse for presenting a paper on heart disease to a simon-pure, 100 per cent psychiatric society like yours, I would point to, and quote from, Professor Eugene Bleuler's very learned paper, entitled: "Psyche and Psychoid" which that profound scholar and scientist read on the occasion of the dedication of the New York Psychiatric Institute and Hospital, and which was published in the January, 1930, issue of THE PSYCHIATRIC QUARTERLY. The professor's opening remark was this: "In order to understand his patients, a psychiatrist must be thoroughly acquainted with both their psychic, and physical condition." I would add to this self-evident axiom, or maxim, a practical observation, namely, that many patients who have, or think they have, disease of the heart, would greatly benefit by the advice and guidance of a psychiatrist.

Psychiatrists possess Job's great virtue—patience. The relation of organic heart disease to disease of the mind as cause and effect must be extremely rare. In nearly 40 years' devotion to the study of cardiac pathology, I can recall but two instances which, by a fair stretch of the clinical imagination, I could have traced the insanity to organic heart disease. I use the term "insanity" as I use the expression "heart disease" in a general sense.

If organic heart disease gave rise to insanity, this world would be one vast insane asylum. However, it is conceivable that an insane person, suffering, if insane people truly suffer, from serious lesions of the heart, *has* an increased physical handicap.

The nearest approach to mental disturbance in a sensitive, self-analytical, introspective cardiac, is mental depression or mild, transitory melancholia.

Cardio-neurosis, if there is such a condition, is prolific of psychical disturbance, giving rise to depression, melancholia and delusions of various oppressive kinds.

The state of mind of the cardiac is totally different from that of the tuberculous. The cardiac is a pessimist, the tubercular is an optimist, the latter's optimism often leading to dementia.

* Read by invitation, before Ward's Island Psychiatrical Society, March 31, 1930.

Having established a plausible alibi for my presumption in appearing before you, permit me to state some facts and fancies, or odds and ends of cardiac disorder.

Murmurs

Ever since the advent of instrumental aid in the diagnosis of cardiac disturbances, the heart murmur, which once imperially ruled over heart lesions, was dethroned and exiled.

Only within the last few weeks, a modern (cardiac) Moses, amidst figurative thunder and lightning, came down from Mt. Sinai (hospital) with an 11th commandment "Thou shalt not believe in murmurs, *for heart murmurs do not mean heart disease.*" (N. Y. State Medical Journal, Vol. 29, Number 23, page 1439.)

The more is the pity, for *clinically,* this is a serious mistake. A murmur, either of organic or functional origin, is a signal of distress; a sign of disturbance; and just as a sound man does not murmur, so a sound heart does not murmur.

Besides, the general condemnation of the murmur, this *forced* abdication of the one time monarch of cardiac signs, cannot with reason and justice be applied indiscriminately to *all* heart murmurs.

No one can, or dare, deny the pathognomonic quality of the mitral presystolic, or aortic diastolic, to say nothing of the aortic systolic, murmur. The fact of the matter is, that a diagnosis of aortic regurgitation is not justified in the absence of the diastolic murmur.

Therefore, I maintain, that the heart murmur is *still* a factor to be reckoned with in heart disease. A proper assessment of the diagnostic value of a murmur depends upon an accurate understanding of its location, quality and transmission.

The charge is made by the anti-murmurites, that murmurs are often heard during life indicating valvular lesions, but the autopsy shows no disease of the valves. Such an indictment is frequently leveled at a systolic murmur, which is heard at the apex, and which points to mitral regurgitation. I admit the truth of the accusation, yet deny the innocence of the murmur.

There are instances of *relative mitral insufficiency.* The relativity relates to acute or chronic dilatation of the left ventricle; hypertrophy and dilatation due to advanced aortic insufficiency; terminal dilation of the left ventricle in the last stage of chronic

myocarditis. In all of such instances of relativity, the mitral orifice, mechanically and coincidently, dilates with the cavity of the left ventricle. The mitral valves may remain normal, but, under the circumstances, they are inadequate to close an abnormally dilated orifice. This condition of disproportion of valves and orifice constitutes *regurgitation,* which, during life, is indicated by a systolic murmur, audible at the apex and transmitted to the left of it. The post-mortem, due to rigor mortis, will show no abnormality in the mitral orifice or valves.

The indictment, however, is quashed by the inexorable clinical fact, namely: that a relative mitral incompetency, if persisted, long continued, produces the same bad sequelae as an organic insufficiency. In view of this incontroversial observation, the case against the insignificance and unimportance of the "heart murmur" is thrown out of the clinical court, which is the court of last resort.

So much for the heart murmur and the murmur mocking modernists.

The heart *thrill* always enjoyed credulity and credibility as a valuable sign of valvular imperfection. Perhaps its comparative infrequency commands more respect and trust. The familiarity of the other breeds contempt.

Arythmias

All the irregularities of the heart bunched under that caption, have, within recent years, assumed accuracy of place and pathology. The discovery of the bundle of His, its function and its ills; the discovery of the nodes, their location and function, and, lastly, the invention of the electro-cardiagraph, all cleared the ambiguities, if there were any, about those irregularities, and, also, incidentally, introduced a new nomenclature.

All the arythmias, perhaps with the exception of one which is known as "pulsus alternans" lend themselves to easy clinical interpretation. They were properly interpreted by our forebears, who were giants in their days. All honor to their memory.

The extra systole, or the premature contraction, can be made out either by the stethoscope, or the radial artery. That used to be known in ancient times, some 20 or more years ago, as an irregularity of volume, principally indicated in the radial pulsation.

Auricular fibrilation is a form of arythmia which thrusts itself on the examiner. Given a heart that is rapid, irregular, tumultuous, almost crazy in its action, is a heart that has an insane, frenzied right auricle. This phase and craze of cardiac disturbance was known to, and appreciated by, all who have gone before us, and they also knew that digitalis is the sovereign remedy for it.

The clinical recognition of both partial and complete heart-block is exceedingly simple. A heart whose contractions range between 50 and 30, displays partial block. A heart whose contractions range below 30 suffers from complete block. I am familiar with heart-blocks, where the contractions were limited to four per minute. Napoleon had partial heart-block. To make certain that a block exists, one must hold the stethoscope over the apex and the finger over the radial artery. In block, the apex stops beating and the artery stops pulsating, synchronously and simultaneously. Heart-block in its serious manifestations is known as Stokes-Adams disease, and it has been known and recognized long before the application of instruments in the interpretation of pathological upheavals of the heart. Heart-block which is a slow heart should not be mistaken for bradycardia which is a slow heart, no more than auricular fibrilation should be mistaken for tachycardia or rapid heart.

Bradycardia is found in old people, probably due to senile changes in the heart muscle. It is also noticed in a few pregnant women in whom it is due to some form of toxemia. Hunger will produce a slow heart. Occasionally individuals are found who habitually have a slow heart. An acquaintance of mine, a man who enjoyed the best of health, and who lived to an age of 76, had a heart which beat 28 times to the minute. It used to be noticed in him that a promising hand in cards raised the radial pulsation to 30 per minute. Those who were familiar with his pecularity took unsportsmanlike advantage of that good soul.

These forms of bradycardia may be considered physiological. The pathological type, or types, occasionally follow infectious diseases when it is observed during convalescence. It is met with in apoplexy, diabetes and nephritis, only however from time to time. Bradycardia may follow the ingestion of indigestible food, in which case the gastric vagus becomes irritated, which in turn, and reflexly,

affects the vagus of the heart. Sometimes the inhibition of the heart is so intense that it leads to permanent stoppage—death.

Tobacco, tea, coffee, alcohol and digitalis produce slowing of the heart.

The "tobacco heart" is, essentially, a slow heart, although the immediate effect of tobacco, in any shape or form, is acceleration.

The cycle, or circus, is as follows: tobacco first stimulates heart and brain; the stimulation is followed by a pleasing sedative feeling; the last stage is depression of both brain and heart. The next step is a fresh cigarette. May I say incidentally and for the benefit of my smoking colleagues, that the deleterious effect of tobacco on the cardio-vascular system is due to quantity and susceptibility. When a large amount of tobacco is consumed daily for some length of time, even if the consumer has no susceptibility to nicotine, eventually the poison will get him. The one, however, who has a susceptibility to the weed, the slightest amount, if the indulgence in it is even moderately continued, the bad effects will be in evidence. The effects are slow and depressed heart; precordial pain, strangely simulating angina pectoris; shortness of breath; perceptible hardening of the arteries; shifting headaches and orbital neuralgia; driving and drifting restlessness, and insomnia.

One should dispel the bewitching delusion that tobacco can be rendered totally free from nicotine. This joyous assurance is a snare for the unwary. No chemical process has as yet been discovered which frees the tobacco leaf from nicotine. The percentage of the poison may be reduced, but not totally eliminated. After all, it is not wholly the percentage or the amount of nicotine in tobacco which constitutes the main caution and argument against its use, it is the *susceptibility* of the smoker to it. *That* is ineradicable and unalterable, but yet remediable.

Mention was made of a possible confusion between tachycardia and auricular fibrilation. To avoid a pitfall, one must remember that tachycardia as such is not associated with irregularities of the heart, while auricular fibrilation is full of them.

Practically and clinically speaking, the arythmias mentioned in this sketch, are the most frequent types which are met with in everyday practice, even in the hands of pronounced cardiologists. They are without difficulty recognized by the trained eye, finger

and ear. To resort to instrumental aid in such cardiac perturbance is a luxury, but not a necessity, to say nothing of a useless and unwarranted expense to the patient. The instrument, whatever it may be, is bereft of intuitive power and devoid of diagnostic instinct. The human faculties, supplemented by experience, are the touchstone at the bedside, office, and clinic. They must be cultivated and acquired to be competent; and if a doctor cannot move without the fluoroscope, and cannot live without the X-ray picture, and cannot have his being without the electro-cardiograph, he is to be both pitied and scorned, because he is a *machine-doctor*.

The grandiose dictum that no scientific diagnosis of a lesion of the heart can be made without the aid of the electrocardiograph, is perfumed piffle. The instrumental influence in treatment and prognosis is practically nil.

Etiology

A few years ago an eminent American author and clinician suggested a change in the nomenclature of the lesions of the heart. The suggestion consisted in the abandonment of the anatomical names, and, in their stead, name each lesion after the germ that causes it. So far so good, but first catch the germ. That suggestion, although ideal in scope and conception, was futile in practice and visionary in adoption. However, the germ idea as a causative agent in heart disease is a creed and a conviction among cardiologists, for the very reason that most, if not all, the outstanding lesions of the heart are associated with diseases which are known, or suspected, to be of microbic origin.

In the study of the etiology of cardiac affections, a very important, an almost overwhelming, factor, is commonly overlooked, and that is heredity. There are cardiac families as there are tuberculous families, the two, I suspect, are about equally numerous. There are more cardiac families, by far more, than cancer families.

The two ubiquitous agents which cause familial heart disease are syphilis and rheumatism. Given a few generations with a manifest tendency towards rheumatic infection, an hereditary trait will eventually be acquired and will show itself among successive or interrupted generations, either as articular rheumatism, or that plus endocardial involvement; or endocardial inflammation, pure, plain, and uncomplicated damaging mainly the mitral valves.

Our forebears groping in the dark, not so pitch dark, however, that they could not see, called that trait "rheumatic diathesis." We say 'it is in the blood." Strictly speaking, the trait is in the germ plasm and "that which goes into the germ plasm must come out in the offspring." The tendency resides in the single cell. That is the basis of all heredity. All inherited characteristics are inherited tendencies of the cell. There is no other form of inheritance. (Maud Slye.)

I have noticed time and again that rheumatic mothers, with or without cardiac lesions, gave birth to children with a strong tendency to arthritis and endocarditis. I have at present under treatment a rheumatically cardiac mother, having four daughters and one son, all affected and afflicted with valvular disease of the mitral type, which is prima facie evidence of rheumatism.

The clinical tradition is, that the rheumatic virus chooses the heart for its target *in children,* while *in adults* the joints are the seat of attack. My clinical observation is, that many a child came to the world burdened with an hereditary disposition to rheumatic endocarditis. This tendency lies dormant until a constitutional disturbance occurs, then an endocarditis or a valvulitis flares up. I have frequently observed children with chorea, plus or minus valvular disease, whose mothers were rheumatic. "Mothers" are purposely mentioned, and singled out because records and recollection abound mostly with mothers.

Back in the nineties, in a paper on rheumatism in infants, I reported infants who were born with arthritis and valvular disease, whose mothers suffered from rheumatism during pregnancy. An instructive parallel can be drawn between hereditary rheumatism and hereditary syphilis. These speculations lead to a consideration of other "odds and ends" in heart trouble, with full play on hereditary influence in prognosis of heart lesions.

Prognosis

Every one within and without the hearing of my voice must have come across patients with multiple, destructive lesions of the valves and muscle of the heart, separate or combined, who worked and lived, and lived and worked. On the other hand, you must have frequently encountered individuals with slight forms of mitral

regurgitation, but who were never strong enough to work, and who in a short time developed lethal sequelae. Why and wherefore?

The accepted explanation of this difference in endurance is the presence of cardiac *reserve power* in the first, and the absence of that beneficient power in the second, class. Thus far all devices which were resorted to, to ascertain and measure this inherent quality, manifested both in health and disease, of the heart, proved to be either futile or inconsequential.

This reserve power is hereditary like a hundred other favorable and unfavorable traits and tendencies which circulate through and around many generations of families. The apple does not fall far from the tree. Judge the fruit by the tree. A knowledge of ancestral defects and deformities of the cardio-vascular systems will shed light on this unknown X in the offspring. May this brief and desultory allusion to the subject, stimulate the hearers and readers to Mendelize this biological feature of human existence.

A momentary further consideration of syphilis and rheumatism as the most frequent and most important causative agents of heart disease. Syphilis is contagious, rheumatism is infectious. Syphilis is parasitic, rheumatism is bacterial. Both affect the muscle and valves of the heart. Rheumatism produces acute endocarditis, syphilis hardly ever does. Rheumatism shows a predilection for the valves, syphilis prefers, as a rule, the muscle. Rheumatism, barring an exception here and there, chooses the mitral valves; syphilis singles out the aortic valves, the exception in favor of the mitral valve is very rare. Knowledge of these etiological preferences will lead, perhaps profitably, to serologic and bacteriologic examinations.

A positive Wassermann reaction is not readily obtainable in even undoubted cardio-vascular syphilis. The patient must be thoroughly salvarsanized and mercurialized before the spirochetae leave their hospitable home and host to bathe in the blood. A blood culture may reward the effort by the revelation of the streptococcus viridans. This blue bacterium is frequently found in pus pockets under the teeth; in crypts of the tonsils and in fistulae around the anus.

The tonsil is an infamous portal of entrance for this streptoccocus which is often responsible for arthritis, endocarditis and valvuli-

tis, acute and chronic. The tonsil, like the appendix, was born to make trouble, in spite of the fact that both are but vestigeal organs, pariahs of nature, so to speak. Nature apparently is doing all she can to rid the human organism of the two pesky things. Nature, however, is slow in her work. In the course of time she, with the benevolent assistance of the surgeons and "pay clinics," will ablate and eliminate the two most dreadful and most revenue-producing organs. In a million years man will be born minus both tonsils and appendix.

Pulmonary Area

The pulmonary area is greatly suffering from neglect. The reason for it probably is that a facetiouus medical wag dubbed it "the region of romance," and doctors are anything but romantic. They lack the poet's "pep."

The second aortic sound in an adult is louder than the second pulmonic. The reverse holds true in children. If the second pulmonic sound in an adult is louder than the second aortic, mitral disease is present. In the absence of mitral disease, an accentuation of the second pulmonic sound points to incipient tuberculosis in an apex. I would like this statement, backed by a wealth of clinical observation, to carry all possible accentuation. Considering that the pre-systolic mitral murmur is fugitive from time to time, the accentuate second pulmonic will hold the diagnosis of stenosis until the murmur reappears.

In a long standing case of mitral stenosis the right auricle is found to be hypertrophied; in that event there will be noticed a strong, heaving motion in the pulmonary area.

Again, an accentuation of the second pulmonic sound will confirm a diagnosis of mitral regurgitation, when the latter is in the first stage and has but one sign, the systolic murmur, to its credit and identification. The second pulmonic sound is of great value in the prognosis and treatment of pneumonia.

The heart in pneumonia is more important than the affected lung. The right heart is of greater concern than the left heart. Failure of the right heart is responsible for most deaths. If the second pulmonic is louder than the second aortic, if it is accentuated and thumpy in quality, no anxiety need be felt. When the sound grows weaker, the prognosis grows poorer. When the sound is impaired

to the point of strained audibility, the patient is nearer God than man.

Parallel with the importance of the second pulmonic sound in the prognosis of pneumonia is its index and guide in the treatment thereof.

It is scarcely necessary to insist that the treatment must be heroic in the presence of a disappearing second sound. Spare digitalis, adrenalin and alcohol, the three militant stimulants, and you spoil the patient's chances of recovery.

Judging from the angle of "odds and ends" this brief, unelaborate sketch of the pulmonary area, you may agree with me that there is more reason than "romance" in this region of the heart.

Even odds are doomed to an end. I am at the end of the paper, though in the beginning of my interest in the subject.

All that was brought up before you may lack the smack and savor, logic and learning, of the textbook. However, every one of you will find, as I have found long ago, that the longer a man is in practice, the more he advances in years, *the more he becomes his own textbook,* and the more his experience and study shed his own personal, individual, flavor.

CONSIDERATION OF THE PSYCHIC FACTORS IN SURGICAL DIAGNOSIS AND PROCEDURE*

BY WILLIAM SEAMAN BAINBRIDGE, Sc. D., M. D., C. M.

Among the innumerable types of disease which the physician encounters in his work, the neurological and psychopathic cases are, perhaps, the most difficult to diagnose and treat. At rare intervals, in history and literature, one comes upon a personality such as that of Horace who evidences the tolerance of a true psychiatrist when he reports Stertinus' remark to Damasippus—"Why should you mind being mad when *all* are so?" Plato's statement concerning insanity is terse and pointed. "There are two kinds of madness, one arising from human disease, the other from an inspired deviation from established custom." Hippocrates wrote: "As long as the brain is at rest a man enjoys his reason; but the depravement of the brain arises from phlegm and bile, either of which you may recognize in this manner: Those who are made from *phlegm* are quiet, and do not cry out or make a noise, but those from *bile* are vociferous, malignant and will not be quiet, but are always doing something improper"—which statement may account for our constant allusion to the irritable soul as one whose liver is out of order!

Shakespeare recognized some of the principles of psychiatric treatment and described accurately many phases of insanity. The abnormal behavior of Hamlet, the mental exhaustion of Brutus and the mania of Lear are cases in point. Macbeth seems to have had a *pre-Freudian* conception of psychoanalysis when he addressed his physician in the oft quote passage:

> "Can'st thou not minister to a mind diseased;
> Pluck from the memory a rooted sorrow;
> Raze out the written troubles of the brain,
> And, with some sweet oblivious antidote
> Cleanse the stuff'd bosom of that perilous stuff
> Which weighs upon the heart?"

However, these rare and understanding souls, Horace, Plato and Shakespeare, are the exception. It was less than 30 years ago that Dr. M. Allan Starr, professor of diseases of the mind and nervous system, at the College of Physicians and Surgeons, N. Y., made the statement "that neurology took an enormous amount of time, but the subject of mental disease could be taught adequately in five lectures."

* Presented at meeting of Ward's Island Psychiatrical Society, March 31, 1930.

In the rapid development of preventive medicine the neuroses have come more and more to the front. Dr. Strecker of Pennsylvania University, says that "at least 50 per cent of the general practice of medicine is concerned with the neuroses, either in their pure expression or as complications of and additions to various organic diseases." The physician, or surgeon, who does not understand in some degree how to handle neurotic patients is seriously handicapped and his usefulness is much impaired. To diagnose as psychiatric a case where no such condition exists, or to fail to recognize a psychiatric element where such is present, is unfortunate. While it must be conceded that the proper "approach" to a neurotic is always a delicate problem, a physician with broad horizon (and a sympathetic gleam in his eye) usually has little trouble in eliciting the complete life history of the man—the difficulty, sometimes, is to stem the torrent of confession. The ladies, God bless 'em, are even more insistent upon relating all ad infinitum! !

Having accomplished the correct "approach" to and reaction in the patient, the next step is to weigh the evidence supplied by the history and decide whether the condition is "a pure expression of a neurosis, or a complication of, or an addition to, an organic disease"—the while permitting the patient "to glean only those courageous facts which go to make for healing."

In the case of a neurotic patient, an exhaustive history is important. A thorough physical examination, even though it prove negative, is a necessity; a blood study and, in cases where abdominal symptoms occur, an X-ray, are all essential factors.

The surgeon is not the proper person to discuss (except relatively) the etiology of the neuroses, but I may say that we are getting away from the idea that they are all founded upon hereditary, or constitutional inferiority. Modern research emphasizes the metabolic, endocrine and toxic factors, as well as early environment, as important causes in many neuroses and psychoses. However, may I say in passing that more intensive research, rather than a greater number of theories is the crying need of our psychiatric hospitals today?

Tonight, I wish to present a few observations, culled from 20 years of contact, as surgeon, among the neurotic and psychopathic wards of New York State—to establish the often definite association

between surgical diagnosis and treatment and abnormal conditions of the mind and nervous system. The points which I wish to stress particularly are these:

1. The frequency with which the surgeon, as well as the internist, is called upon to diagnose purely psychic conditions masked as advanced disease.

2. The frequency with which the physician has to diagnose a physical condition in which the psychic reaction of the patient, rather than the abnormality or disease, is the real factor in the mental collapse.

3. The necessity for the surgeon to recognize (because of or in spite of the neurosis) the physical condition which may be either a contributing or basic cause in the abnormal mental state—and to eliminate the cause.

In attempting to illustrate these points, I first wish to cite the purely psychic cases and, in doing this, I want to emphasize the fact that a patient may become a member of this class—the purely psychic group with symptoms of advanced disease—as the result of a medical opinion. All of us here tonight are familiar with the symptoms of heart disease and high blood pressure. Practically the first thing we do when a patient of 50 enters our office is to listen to his heart and take his blood pressure. With what reaction on the patient? Dr. Lewis A. Connor recently answered this question with the following statement. Dr. Connor said: "The psychic reaction to doubt concerning the integrity of the heart seems to be much more violent and profound than is the case with any of the other internal organs. In the minds of most laymen the thought of heart disease is still associated with the idea of sudden and unforeseen death." The following is a clear case of a cardiac neurosis.

"A man, aged 22, a clerk, seen in September, 1925, complained of shooting pains in the pre-cordial region, some shortness of breath, and insomnia. He had never had any serious illness. In 1922, an insurance examiner told him that he had a heart murmur and should consult his physician. The physician confirmed the diagnosis and treated him by limiting the exercise. Up to that time he had felt perfectly well. Soon after this he began to have pains in the left side of the chest and, at times, a feeling of breathlessness. He grew very apprehensive, lost interest in everything except his con-

dition, had various nervous symptoms, and could not sleep. This state of things continued for three years; during much of the time the patient was unable to work. A careful physical examination revealed no abnormalities whatever except a systolic murmur heard chiefly over the pulmonic area and having the usual features of an accidental murmur. The process of restoring his confidence and his self-control was a slow and tedious one and it was three years before he had entirely regained his health." So much for the psychic factor in cardiac disorders.

In regard to hypertension, the psychic factor is as important, if not more so, than in its relation to heart disorders. Dr. William H. Robey recently stated "that we talk altogether too much to patients about blood pressure." He cited the instance of Dr. Williams, who examines applicants for the State police in Massachusetts, and who says "that when several men have to wait in the anteroom for a half hour or more for physical examination, they often have hypertension when they come into the examining room, but, if the man can be put off for some reason until the next morning, he is examined quietly and his blood pressure is found to be normal."

Besides the psychic effect produced upon the highly *sensitive* patient by such a casual remark, following examination, as: "Your blood pressure is high," or "There seems to be some difficulty with your heart," there are many instances of emotional shock resulting from the point blank announcement to a patient, for example, that his Wassermann is four plus. I distinctly remember the case of a man, who came to me many years ago, in a state bordering on insanity, because a physician had told him that he had "a syphilitic-looking lesion." This man had a real neurosis (whether of "anxiety," or other type) and it was only after repeated Wassermann tests had proved negative and the ulcer had healed, that the severe mental symptoms disappeared—without anti-luetic and with very little of any other kind of treatment. If these facts are true in relation to *clinical diagnosis*—they may be emphasized many times in *surgical diagnosis* and treatment—where the patient realizes that surgery is the only "way out."

In line with the thought of guarding the neurotic against "a psychic reaction," from the too blunt expression of a serious diagnosis, the other aspect—of guarding the diagnosis against the neurotic

seems equally important. Experience has taught most of us "the art of distinguishing one disease from another" and even the art of "distinguishing between two allied diseases" but, in the case of the neurotic patient, it is often necessary to make "a diagnosis based upon the available sources of information, but subject to change"—with the emphasis on the latter phrase! In many instances "the psychic cases" of class one are adepts in the art of vivid description. How many times have I listened to the enumeration of symptoms of "terrible epigastric pain and vomiting" with the "classic" relief after a meal which implied a definite duodenal ulcer, only to find after careful questioning and examination that the only thing the matter with the patient was excessive acidity and, doubtless, a torpid liver. Many of these patients require nothing more drastic than a purge and a few minutes of reassuring talk with an understanding physician!

Naturally, when it is apparent that the mental state of a patient is such as to evidence the need of a neurologist, the physician, or surgeon, should call for an expert consultant in this line to assist. Frequently, there are neuroses, or psychoses, following operative procedure, where a trained neurologist is required to establish the final mental diagnosis and map out the line of treatment. The converse of this is also true, since the surgeon, or gynecologist, often may prove of inestimable aid to the neurologist, and to the patient whose mental condition is caused primarily by physical factors.

Class two, in which the patient has a neurosis, or a psychosis, because of a psychic reaction to her condition, or her handicap rather than because of any direct toxic, or other physical, relation between the two, would fill a volume of case reports. In this class are the many cases where plastic repair and restoration, or minor surgery, will eliminate the mental as well as the physical handicap. Among these patients will be found many of the phobias, as well as other mental types. My experience with "cancer phobia" (associated with serious mental breakdown) has proved that many of these patients can be restored by the surgical removal of a rectal papilloma, or a mammary adenoma, to a normal mental equilibrium. In this class must be placed, too, many war neuroses, those in connection with face wounds in particular. Ugly scars, resulting from burns and accidents, deformities of the nose and lips, healed

lupus and syphilitic lesions, hare-lip and cleft palate and obvious disfigurement, following the radical removal of malignant face and jaw neoplasms, are frequently sources of mental anguish with resultant mental depression and maladjustment. Massive hypertrophy of the breast may be another competent producing cause of mental breakdown as may be any other abnormal condition which makes a patient self-conscious, or produces a feeling of inferiority!

To illustrate a case of a true "anxiety neurosis," with "cancer phobia," permit me to cite another case-history.

A young woman, single, consulted me in March, 1920, because of nodules on the chest wall and extending into the axillae. Two years previous to this examination, a lump, the size of a hazel-nut, had appeared in the lower quadrant of the left breast. This lump fluctuated in size, from month to month and, when six months later a lump also appeared in the left lower quadrant of the right breast, the patient consulted an eminent surgeon. This man examined the breast, spoke definitely of the possibilities of cancer, and advised operation.

Operation was performed and both breasts, with the exception of the nipples, were removed. The pathologists reported "No malignancy." The plastic result was very far from aesthetic and the mutilated breasts were a constant reminder to the patient (a high strung and temperamental young woman) of the possibilities of cancer."

For two years the patient harbored this "phobia" and, when nodules developed on the chest wall, she faced a severe nervous crisis.

I examined the patient, at this time, prescribed cathartics and consistent care of the gastro-intestinal tract, with the result that the nodules disappeared, as did the neurosis.

In this case, if the small cyst, or adeneoma, had been removed, via a circular incision under the breast, preserving the breast tissue and contour and the patient had been spared the vague threats of a possible future carcinoma, it is safe to say she would have escaped the neurosis.

Cases of massive hypertrophy and excessive elongation of the breast tissue are not rare conditions but that they may be definite factors in an inferiority complex, the forerunner of a probable

neurosis, is not mentioned frequently in medicine. However, I have seen numbers of cases where massive breast hypertrophy and a psychosis were associated and it is my personal belief that in some the psychosis was produced in part by the patient's mental reaction to the physical handicap. Kausch (Zentralbl. f. Chir. Sept. 2, 1916) reports the case of suicidal mania in a woman with massive breasts and relates the breast pathology to the mania.

Recently I removed 15 pounds of tissue (including blood) in a case of breast hypertrophy; doing a plastic restoration of the breast with transplantation of the nipples (following the technique of Dartigue of Paris whose splendid plastic surgery of the breast I have observed) in a neurotic female. It is too soon to make a full report on the present mental status of the patient but her mother states that the girl's mental outlook has improved.

For the two following cases, illustrative of the effect upon the mental condition of removing a physical deformity (by plastic surgery), I am indebted to Dr. I. J. Sperber, chief of the dental division, Manhattan State Hospital.

J. D., male; 68 years of age. In 1912 the patient was operated upon in the New York Skin and Cancer Hospital because of cancer of the mouth. Portion of the hard palate on the right side was removed from the median line, including the alveolar ridge and extending posteriorly to the zygomatic process. Part of the malar bone was also removed. This resulted in asymmetry of the face and a marked nasal tone. Upon admission to Manhattan State Hospital, the patient was agitated and depressed, with marked suicidal tendencies.

Examination showed the deformity cited above and also the fact that the patient had no teeth in either jaw. He experienced great difficulty in talking and in eating, as food regurgitated through his nose from his mouth.

January 24, 1929, upper and lower artificial dentures were made, with an obturator attached to the upper plate, closing the palatal deformity and building up the tissues on the facial side where the symmetry had been lost, due to the removal of the malar bone. To stabilize both dental plates and to retain the upper one, spiral springs were attached to both plates.

The patient is now able to masticate his food and has no regurgitation of food through the nose. He is no longer depressed; adapts

himself well to the ward routine and his suicidal tendencies have disappeared.

F. W., male; 72 years of age. July 10, 1928, this patient was operated upon in the New York Skin and Cancer Hospital, for an epithelioma of the lip. A large portion of the lip, extending well down the chin, was removed. A plastic operation, to form a new lip from the cheeks on both sides, was performed.

July 12, 1928, the patient became restless, confused and disoriented. He was sent to Bellevue. July 28, 1928, he was admitted to Manhattan State Hospital. Upon admission, a marked U-shaped deformity of the lower lip was noted. The lower teeth projected beyond the lip and saliva continually drooled from the lips. The patient complained of difficulty in chewing and of the discomfort caused by the constant drooling of saliva upon his clothes.

January 14, 1929, his teeth were cleaned, loose pyorrhitic lower teeth were removed and a dental plate constructed, replacing the missing teeth. On March 14, 1929, the patient was operated upon by Dr. Bainbridge. Plastic operation was performed on the lip correcting the U-shaped deformity.

On March 26, 1929, it was noted that the site of the operation had entirely healed and that the saliva no longer drooled from the patient's mouth. He continued to improve mentally and physically and April, 1929, a diagnosis of psychosis with somatic disease was made. June 3, 1929, he was paroled. In December, 1929, the ex-patient was interviewed by a social service worker who reported him in good physical condition and getting along well.

Finally we come to class three—that in which it is imperative for the surgeon to recognize (because of, or in spite of, the neurosis) the physical condition which is the contributing or essential, phase in the abnormal mental state, and remove the physical factor surgically. These are primarilly cases of toxic absorption from thyroid glands, from pelvic infections and inflammations and from the gastro-intestinal tract.

In toxic goiter, as I have stated many times, if no beneficial results are obtained through internal medication, surgery is certainly indicated. I shall not attempt to elaborate the direct relation between many toxic goiters and some types of neuroses. This is a point which we all concede. I shall merely cite the following illustrative cure.

G., female; 55 years of age. This patient had tremor, an enlarged and throbbing neck; palpitation and cyanosis. The nerve symptoms were very severe as was also the exhaustion. Her depression, associated with suicidal tendencies, was so great that her case was diagnosed as melancholia.

Examination evidenced a clear instance of hyperthyroidism. Partial thyroidectomy was performed; the right half and a small portion of the left upper pole of the gland were removed.

The recovery was uneventful; the patient gained in physical strength and, in a short time, all evidences of the hyperthyroidism disappeared and—the neurosis entirely cleared.

Abnormal mental conditions, sometimes of severe character, often are associated with pathology of the female pelvis. Symptoms from this source may include headaches, exhaustion, depression, irritability, hypochondria, apprehension, obsessions, etc. These may occur at involution (when, of course, it is a question of menopause, rather than of pathology of the site) or may be present at practically any period of life, following puberty. The causative factors may range from simple catarrhal endometritis, through ante and retro-flexions, procedentia, etc., to large fibroid tumors. Restorative surgery may range from simple curettage to pan-hysterectomy. A woman who might be able to remain on the sane side of the borderline, if in good physical health, may experience mental collapse when any of the above pelvic conditions are added to a constitutional handicap.

The following is a case in point. D. G., female; 27 years of age; married; two children. The first mental upset occurred in 1915 and lasted 16 months.

The second mental attack, 1923, followed the birth of her first child, and lasted four months. The third attack commenced August, 1925. Diagnosis: Manic-depressive psychosis.

Physical examination revealed lacerations of the perineum and cervix; enlarged uterus and a small tender mass in the left broad ligament.

October 20, 1925, laparotomy was performed. There was a prolapsed, cystic left ovary and an appendix bound down by adhesions. I removed the ovarian cyst and appendix and suspended the remains of the left ovary.

Following surgical procedure, the mental improvement of the patient was rapid and she was paroled from the hospital a few months later. There has been no recurrence of the mental breakdown.

Patients with toxic psychoses, particularly those with a toxemia arising from the gastro-intestinal tract, may be found in many of our mental hospitals. Theoretically "almost all toxic psychoses are preventable" but actually what of the man, or woman, with kinked and banded intestines, or a mobile and diverticulated cecum? Pouches and diverticula are selective sites for the retention and absorption of putrefactive bowel-content and where such absorption is the toxic factor responsible for the mental pathology, the patient has long since passed "the preventable" stage. He requires surgery—plastic repair of the intestinal tract, the surgical elimination of angles and kinks, where such conservative measures will answer. He requires more radical surgery when the lesser degrees fail to attain the desired result. May I cite the following illustrative case?

C. C., male; 23 years of age; single. This patient consulted me because of epileptiform seizures, associated with mental depression, severe constipation and gastro-intestinal toxemia. He had lost 33 pounds in the preceding year. All of the seizures had been major attacks, with biting of the tongue, etc.

The Wassermann, stool and urine examinations were practically negative. X-ray report showed: "ileal stasis and considerable stasis in the cecum and the rest of the colon"—in other words, a series of foci of infections.

The patient was so alarmed by the seizures that he decided to have the intestinal bands and kinks corrected surgically. Operation was performed September 26, 1925, with the following findings: "Appendix was badly kinked; there was a strongly developed ileo-pelvic band and the sigmoid was tightly attached to the under surface of the meso of the terminal ileum and cecum. This attachment was severed. The ileo-pelvic band was cut transversely; the raw surfaces covered longitudinally. The appendix was removed; the stump anchored so as not to weaken the propelling power of the gut. The band which tightly constricted the ascending colon was cut transversely and sewed longitudinally.

The convalescence was without incident. The patient recovered; there was no recurrence of the convulsions and, in the five years since operation, he has been graduated from college with a civil engineering degree. A note from him, dated, March, 1930, states that he is in perfect health and has gained 15 pounds in weight.

Finally, I wish, briefly, to reiterate the points which I have elaborated somewhat in the text:

1. Every medical student should be taught to recognize, as far as is humanly possible, the neurotic type of patient and the rudimentary rules of psychiatry which may apply to his case. The student should realize that the diagnostic and surgical demeanors which may be employed with the average individual probably will ill-fit the needs of the neurotic. His reactions are more acute. The neurotic must be guarded from "psychic anguish" at every angle, particularly the angles of surgical diagnosis and procedure. Under local anesthesia, I have seen a neurotic patient wince with "psychic pain" at every sharp click of the surgical shears and I have seen all evidences of the "pain" disappear when the click of the shears was eliminated by winding an elastic band around the point of contact. Your diagnostic manner may be dignified but it was Voltaire who said that "solemnity is a real disease." The patient may contract it from nurses and physicians. If the patient has hypertension, or a pathological thyroid, he may never die from either—except through emotional anticipation.

2. Guard your diagnosis from the neurotic! Don't accept his version of symptoms without precise clinical analysis; add urine, stool, blood and psychoanalysis if they seem indicated.

3. Eliminate the physical conditions which produce psychic reactions in the patient. While breast hypertrophy, benign tumors (suspected by the patient to be cancer), birthmarks and scars may bear no *direct* relation to the mental collapse, a fine plastic result, eliminating a face or other obvious deformity, may cure or prevent a neurosis!

3. When the evidence indicates a gastro-intestinal, pelvic or other pathology as the *basis* or contributory cause of the psychoneurosis, correct the pathology surgically, if necessary, and it is my earnest belief that we will restore a large percentage of psychiatric cases to a more normal mental status.

COLONIC ANESTHESIA IN THE MENTALLY UNSTABLE

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Preliminary medical care in all surgical cases, even in emergencies, is, usually, a prerequisite for a successful outcome. In like measure, the employment of a proper anesthetic, to fit particular groups of individuals, should, of necessity, receive the thoughtful consideration of all surgeons and anaesthetists.

There has been much experimentation and advance since the day when the science of surgery was revolutionized by the discovery of anesthesia. For years general inhalation anesthesia was the only means employed. Later, local, spinal, regional, and colonic anesthesias gradually found their place of usefulness.

This paper is presented not to give the details of the various anesthesias, their dosage and the qualifications for their utilization, but, rather, to describe, from a surgeon's viewpoint, often the necessity for a special type of anesthesia in those patients ranging from the highly nervous to the definite psychoses, and down to the frankly insane. However, a brief résumé of the more commonly used drugs, may not be amiss.

The principal inhalation anesthesias, as we all know, are ether, chloroform, N_2O and O_2, ethyl chloride, the combination of these with one another and with A_2, and ethylene.

It is conceded that, of this group, ether, especially for prolonged major operations, is the safest and most generally utilized. The borderline of danger is wide, it does not possess the risks common to chloroform, N_2O, and ethyl chloride, but the secondary stage is more protracted. Unless it is used with N_2O, the odor and excitement, and the struggling of the second stage may be quite prolonged and have a lasting detrimental effect upon the patient.

Chloroform, first used in 1847, is a dangerous weapon in the hands of any but the expert. Although an ideal anesthetic, the margin of safety is small, and its use is usually superseded by the less dangerous borderline drugs. It may be employed in bronchial cases, alcoholics, drug addicts, and in patients with high blood pressure.

N_2O gives rapid and pleasant induction; it is safe, recovery is

rapid, but muscular relaxation is not complete. It may be advantageously employed in cases with pulmonary lesions, including tuberculosis, in kidney insufficiency, profound sepsis and shock, and when frequent administration for short intervals is necessary. It is contraindicated in patients with advanced myocarditis.

Rapid induction and reaction with the absence of respiratory irritation, gagging and vomiting, make ethyl chloride valuable in short operations. However, its administration is attendant with danger as the margin of safety is small, and muscular relaxation is not obtained; in fact, there is often rigidity and spasm.

Although ethylene is a pleasant and safe anesthetic, many hospitals prohibit its employment because of the undue number of accidents reported as a result of the highly explosive character of the drug. Moreover, its malodor is an objectionable factor. In addition, relaxation is not as complete, and there is more bleeding than when chloroform or ether is used.

Intra-tracheal insufflation, originally suggested by Meltzer and Elsberg of New York, is especially used in thoracic surgery, and also may be employed in head and neck work. However, it requires an expensive apparatus and must be guided by expert hands.

Intra-spinal analgesia, first introduced by Corning, in 1885, is of benefit when the fear of a general anesthetic is to be avoided, in respiratory dyscrasias and kidney incompetency. It affords complete relaxation, and is easily borne by children as well as the aged.

Sodium iso-amyl-ethyl-barbiturate, or sodium amytal, was introduced as an intravenous general anesthetic, in recent years, as a result of the efforts of Zerfas and McCallum of Indianapolis, and their co-workers. This drug is injected intravenously, in a 10 per cent solution, the average dose being 20-25 mg. per kilo of body weight. The patient falls into a peaceful sleep, without any excitement, within three to five minutes after injection of the drug; surgical anesthesia is obtained within 15 to 20 minutes and lasts from one to three hours, depending upon the dosage. The patient awakens quietly, without nausea or vomiting. However, care must be exerted, for, if the drug is injected too rapidly or if a large dose is employed, there may be a rapid drop in blood pressure. Further, cases have been reported, following the employment of sodium amytal, of violent delirium, and prolonged stupor for 12 or 14

hours, with the danger of falling back of the tongue, pulmonary edema and other respiratory embarrassments due to the patient's inability to cough up mucus, shallow respiration, etc.

The total number of cases reported in which sodium amytal has been employed is relatively small, and Zerfas[1] states that, "there is no definite information available regarding the lethal dose of this preparation in man." However, excellent results have been obtained by the use of this drug in small doses as a preliminary to general and local anesthesias.

While the preliminary employment of morphine, in conjunction with atropine, is general, as it unquestionably dulls the mental state, the majority of surgeons have had anxious moments in the operating room because of shallow respirations, cyanosis, pin point pupils, following the use of this drug. This may be due to an idiosyncrasy against the drug, to an overdose as far as the individual is concerned, or to the dosage variability of the tablet content. Because of this, its use is prohibited by some surgeons.

The mental state of surgical cases is more and more claiming the attention of operators. Kilan of Germany aptly writes: "Consideration of the psychic condition of the patient is identical with protection of the whole organism. Many patients squander their physical and psychic energies through anxiety over the operation and not from serious strain which the operation itself represents. Their thoughts are concentrated not so much on the incision and the pain as on the terrible fear of death." So much for fairly normally balanced individuals. But what of the hysterias, neurasthenias, the borderline and the true psychoses, and the insane? Here particular attention must be paid to the fear complex, for the psychic element may be so strong that untoward developments, at times, fatal, may supervene. It is necessary, then, to keep such patients controlled nervously, as far as possible, and to remove the operative approach entirely. In the psychoneuroses, a recognized form of treatment is the avoidance of mental conflict with environment, which includes sudden mental shock that may be afforded by such stimuli as preparation for an operation, anticipation of the surgical procedure, the removal to the operating room, the fear of inhalation of the anesthesia, with the resultant struggling and excitement during its administration. Psychic shock unquestionably

plays an important part in the administration of an anesthetic, particularly in the neurotic, hysterical and borderline mental cases, where fear and inability to cooperate add to the difficulties of anesthetist and surgeon.

Gwathmey[2] quotes Keen, as follows: "When the fears of a patient who is conscious are developed into terrors of semi-consciousness, in which the patient imagines the most frightful accidents are taking place, it can be readily understood that profound nervous shock is produced."

In a recent article by Bainbridge[3] we find the following: "White says the aim of psychiatry is no longer considered to be either to find a diseased nerve cell or to make a hard and fast diagnosis of a given condition, at a given time. To understand psychiatry, we must understand the individual; we must study not only his origin and development but his adjustment to conditions. The provocative causes of mental disorder are legion and the type of mental pathology may change from time to time." How often a mental condition aggravated, apparently, by an operation, is attributed to shock from the surgical procedure per se, when it may be really due to the excitement of anticipation, the disturbed orientation by removal from bed to operating room, the intense struggle against the anesthetic, etc., is an interesting point for speculation.

The ideal anesthetic for the broad group of the mentally unstable is, therefore, one that is safe, where the anticipatory shock, with the resultant psychic element consequent to the excitement and struggle against inhalation, is obviated, where the induction is pleasant, and the reaction is free from such sequelae as nausea, vomiting, headache, gas pains, etc. Colonic ether anesthesia embraces all these qualifications and is the saving factor for this large class of patients.

Gwathmey[4] believes that "Psychic shock is usual with all the methods mentioned (local, spinal, regional and inhalation anesthesia) unless preceded by medication that renders the patient unconscious or nearly so, but this is not customary at the present time. Colonic ether anesthesia is the ideal, as it combines the terminal with the preliminary medication, and the patient is unconscious or obviously indifferent when brought to the operating room. Patients have been anesthetized with this method many times in

their own beds and without their knowledge. This may be a life or death matter with the extremely nervous, as in toxic goiters. It is especially so in the insane."

An illustrative case which he gives is that of an insane woman who, if she had had an inkling of the impending operation would likely have caused trouble. The colonic anesthesia was given by the nurse, in the patient's room, and after being rendered unconscious, the woman was taken to the operating room; the surgical work was done, and she was returned to her bed without having seen her surgeon.

The standardization of the dosage and the perfection of the present technique of rectal ether anesthesia are due to the indefatigable work of Gwathmey, who has made this method one of the safest and most satisfactory of the general anesthesias. His publication of a paper in 1913[5] giving his technique and results, reawakened the interest of the profession in this method, first introduced by Roux in 1846, who administered water ether rectally, and followed in 1847, by Pirigroff who used ether vapor, in like manner. Gwathmey and others agree that when there are poor results or severe after effects, such as colitis, bloody stools, etc., the cause can be traced to improper preparation of the patient, faulty technique, or the use of this method in cases where it is contraindicated. One may "steal the case," as is often done in thyroid surgery, by giving the patient for several days, a daily injection by rectum of eight ounces of a 5 per cent solution of glucose and soda bicarbonate; on the day of the operation there is no change in the schedule, but the ether-oil mixture is substituted without the patient's realizing that he is receiving an anesthetic. Induction is gradual and peaceful and only rarely is there any excitement stage.

The standard dosage, according to Gwathmey,[6] is one ounce of a 65 per cent solution per 20 pounds of body weight. Experiments show that the rate of evaporation of ether is constant in 20, 50 and 75 per cent oil mixtures, animal, mineral or vegetable. Therefore, the anesthetic is regular and even. When the solution approaches body temperature (37° C), the ether leaves the oil in gaseous form; it is taken up by the capillary circulation of the colon into the general circulation, from the heart to the lungs, where a large quantity is excreted; the remainder is carried to the brain. The brain is

never deeply narcotized, as the absorbing power of the colon is very much less than the excretory function of the lungs. Heat is extracted from the surrounding parts and, during the process, the mixture as well as the gut, is cooled off. This aids in retarding elimination and absorption, and in regulating the dosage. The skin keeps warm to the touch, corneal reflex is present, color is good, respiration is quiet, pulse and blood pressure are normal and, when exhaled, the ether is warmed to body temperature, thus avoiding irritation of the respiratory tract.

Colonic anesthesia is indicated in cases of obesity, hyperthyroidism, respiratory embarrassment and where operative procedure is to be performed on the head, neck, chest, and respiratory tract. It is contraindicated in all cases of disease of the lower intestines, colitis, anal fissure and ulcer, hemorrhoids, etc.

Lundy[7] states that, "Morphine is as strongly indicated before the induction of oil ether colonic anesthesia, as it is contraindicated when ether is given by the open drop method. Morphine with drop ether might depress respiration to such an extent that aeration would be insufficient for proper oxygenation." He adds that, in 1925 and 1926 all patients to whom he gave colonic oil ether were examined proctologically before and after administration, with nothing of importance noted as a result of its use.

There are no detrimental after affects—the patient wakes up as from a quiet sleep (an element of importance in cases of mental unbalance), blood and urine analyses fail to demonstrate any toxicity and, as Lundy remarks, proctological examinations do not show any resulting abnormality.

The only apparatus required is a rectal tube of small size—28 inches long and a quarter of an inch wide—attached to a glass funnel.

The amount of the solution necessary for the average case is:

Ether	4-5½ ounces
Pure olive oil	2 ounces
Paraldehyde	2 drams

This mixture must be shaken thoroughly and warmed in a water bath, before instillation.

The usual procedure is as follows:

The patient does not receive any cathartic for 48 hours prior to operation. The evening before operation he is given a soap suds enema, followed by two clear water enemas, a half hour apart. A good night's rest is induced by the administration of two allonal tablets or some similar hypnotic. On the day of operation, three hours before the patient is anesthetized, a low soap suds enema is given or the bowel is emptied normally. Two hours later a 10-grain chloretone suppository is inserted. Three-quarters of an hour before the patient is anesthetized, a hypodermic injection is given, of 1-6 gr. morphine sulphate and 1-150 gr. atrophine sulphate. The room is darkened and quiet, with a screen placed around the bed, if in a ward. A suitable lifter is put underneath the patient, so that he can be easily transported on a carriage when narcotized. He is turned on his left side (Sims' position), a towel is placed over his eyes, and a lubricated rectal tube is inserted for a distance of six inches into the rectum (the tube being first filled with mineral oil to exclude the air) with the funnel below the level of the pelvis, so that any gas in the rectum may be expelled; the ether oil mixture is then added, the funnel being raised about one foot above the pelvis. The instillation should be slow, and the entire process should take about 20 minutes. At the end of instillation, the rectal tube is clamped and removed before the patient is placed on the stretcher. About five minutes after the anesthetic is begun, the patient feels drowsy and gradually falls into a quiet, peaceful sleep. Complete surgical anesthesia, with muscular relaxation, however, is not obtained for about 45 minutes, and it may be necessary to supplement a few drops of chloroform or ether before it is possible to begin surgical procedure. During instillation the patient may complain of a sense of fullness in the rectum. This, however, is transitory, and firm pressure with a pad on the perineum should be maintained for a short while to obviate the possible expulsion of the mixture.

The anesthesia usually lasts about three hours, and can be deepened by placing a towel over the face, and lightened by introducing an airway. If the operation lasts longer than three hours, add one ounce of mixture for each additional hour. During operation it is necessary to maintain a clear airway, as in any other type of

anesthetic. At the completion of the operation, when the patient is returned to his bed from the operating room, the bowel is thoroughly washed out and eight ounces of clear, warm coffee are injected. The patient awakens peacefully, without any unpleasant after effects. If only an analgesic effect is desired, as in obstetrical work and thyroid surgery, the use of 2½ ounces ether with 2 ounces olive oil is the required dosage.

Attention has been directed in this country to a new and recent development in rectal anesthesia, that of tribromethylalcohol, i. e., avertin. This drug has been used extensively in European clinics, especially in Germany, and the results of over 100,000 cases have been reported by various authors.

A three per cent aqueous solution of avertin at 40° C is injected rectally. The induction is peaceful, there is no excitement stage, the anesthesia lasts about three hours, during which time there is full surgical relaxation; recovery is quiet, with practically no nausea, vomiting, headache, etc., and no pulmonary complications. Toxicity is very low.

There are certain drawbacks to the use of this drug, however, the chief ones being:

(a) Its rapid absorption, which may cause the patient to be flooded with a toxic dose, and which prevents the withdrawal of the drug, once it is administered. Avertin is more rapidly absorbed than water by the rectal mucosa. According to Guttman[8] "80 per cent is absorbed in the first 20 minutes, and 95 per cent within the first two hours."

(b) The formation of highly toxic and irritating dibromoacetylaldehyde, if heated over 40° C. This may result in extensive sloughing of the rectal mucosa.

(c) The inability to judge the correct dosage, as this has not yet been standardized. The average dose is .10 to .15 grams per kilo of body weight.

Referring to avertin, Kilan[9] remarks: "One can produce complete anesthesia, but only with definite increase in the danger to human life." He[10] further states: "The indications for avertin

anesthesia are, as yet, transitory, as the whole procedure is in the stage of development, and the danger zone can only be empirically established." Further developments may definitely determine the question of avertin's place in rectal anesthesia.

The writer believes that, as time goes on, the value of colonic anesthesia in the mentally unstable will be more widely recognized and employed. He feels its use is particularly applicable in those cases where operation for a possible mechanical cause of a psychic condition may mean a mental as well as a physical cure. The prognosis may be unfavorable if the excitement stage, (usual in inhalation anesthesias) preceding the surgery, is such that a lasting influence upon a diseased mental state may result; this stage is absent when colonic ether anesthesia is given.

Conclusions

1. The question of anesthesia in the mentally unbalanced, including the neurasthenic, neurotic, psychopathic, and frankly insane, warrants the earnest thought of all surgeons and anesthetists.

2. Anticipatory fear, the excitement stage, the struggle against the anesthesia render the task of the anesthetist and surgeon extremely difficult and may, because of the strain on the heart, result in a fatality.

3. Inhalation, spinal, regional, and local anesthesia, should be eliminated, if possible, in this class of individual.

4. Rectal oil ether anesthesia, which has established its place in surgery, unless contraindicated, is the ideal method.

5. Oil ether is the commonly accepted rectal anesthesia, but avertin, though still in the more or less experimental stage, has been brought to the attention of the profession by its rather large use abroad.

6. Oil ether is safe; it is given in bed without the patient's realizing he is receiving an anesthetic; anticipatory and psychic shock are prevented; induction and reaction are peaceful; and there are no unpleasant sequelae.

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PHYSICAL THERAPY IN A MENTAL HOSPITAL*

BY RICHARD KOVACS, M. D.

Modern physical measures offer a wide range of remedial agents to affect body functions and body pathology and nowadays no general or special hospital can do full justice to its patients without employing at least some of these measures. Mental hospitals have generally fallen in line with this advance, and possess well equipped departments of physical therapy where, through the mediums of water, electricity, light and motion, physical effects are administered in a pleasant and efficient way. The painting in the study of the superintendent of this hospital, showing how Pinel took off the fetters of patients at the Salpétrière in Paris, vividly portrays the contrast between the new and the old ways of employing physical means for the unfortunate mental patient. Briefly enumerating the methods at our disposal at the present day, hydrotherapy may be mentioned first because it is the oldest and one of widest applicability for both mental and physical conditions; it enables the use of heat, cold, friction and pressure for general sedative tonic or hardening effects, or for the combating of local inflammation, or for the stimulation of local circulation. The wartime introduction of hot whirlpool baths added a powerful new method for the latter purpose. The various electrical currents such as the static, high frequency, faradic, galvanic, sinusoidal, serve for general stimulation or for sedation and relaxation, or for the increase of local circulation, for relief of pain and of congestion, for promotion of absorption, and for what is most important—the exercise of weak or paralyzed muscles. Next, there is the powerful range of the electromagnetic spectrum, the therapeutic possibilities of which are just beginning to be realized, At its long wave end it offers the infra red and heat rays for relaxation, relief of pain, increase of local or general metabolism. Then it contains luminous rays for general stimulation and, finally, there are the ultraviolet rays for general tonic or local counter-irritant effects. Last, but not least among physical agents, are the various mechanical measures such as massage, therapeutic exercise, mechanical vibration, producing local or general stimulation and exercise.

The rational and truly scientific application of this imposing

* Read before the Ward's Island Psychiatric Society on March 31, 1930.

array of potent measures to organic diseases of the central nervous system and to mental disease, however, is still in its infancy. The average neurologist and psychiatrist must be persuaded to think in terms of the transformation of physical energies into heat, chemical or mechanical changes and subsequent biological effects on function or sensation, instead of considering them merely as a convenient means of disguising suggestive therapeutics. The reason for the still widespread disbelief in the real somatic effects of the manifold therapeutic currents of electricity, for instance, lies in the fact that in the early days of the galvanic and faradic currents they were applied crudely (and without any regard for knowledge of the real underlying pathology) to many affections on which they could have had no real therapeutic effect. These early errors were then carried from one textbook to another and still can be found in many of these works. They appear ridiculous, of course, in the eyes of the physical therapist who has had modern training and who realizes that one cannot expect to restore the highly differentiated elements of the central nervous system—atrophied cells, degenerated tracts, destroyed nerves—by any form of physical therapy. On the other hand, he also knows that many of the symptoms accompanying organic disease may not be due to destructive processes in the nerve tissue itself, but are merely accessory phenomena due to nutritional disorders or to irritation or inhibition. Such processes may be influenced by well chosen local electric or other measures or by peripheral stimulation. It has also been contended by competent observers, a theory by no means impossible, that an incitation to the formation of new paths for the conduction of impulses may be set up by such peripheral stimulation or that existing but dormant or weakened paths may be revivified. Hence the necessity for a careful revision of all the stereotyped textbook advice as to the physical treatment of organic affections of the central nervous system and the substitution of the viewpoint of modern research and of modern methods of treatment. It will be the object of future research to determine (1) which measures shall be used to treat the actual seat of disease directly; (2) which measures should be used to influence the existing pathology through its afferent neurons, or through general systemic action, and (3) which shall be applied for the purposes of suggestive therapeutics, a means which, after all, is an important means of healing.

In the large field of mental disorders, considered at present more or less functional only, there is likewise need of painstaking research and clinical observation necessary to determine whether it may be possible to replace suggestive therapeutics partly by rational physio-biological ones. An interesting but by no means fully convincing effort in this direction is presented in a recent paper by Cotton.* He claims that at the Trenton State Hospital patients in the so-called functional group, including manic-depressive insanity, dementia præcox, paranoid conditions and psychoneurosis, have been benefited when many so-called hidden infections in them were recognized and eliminated by the use of suitable physical measures. The latter consisted of extracting all infected teeth whether vital or devitalized, by removing suspicious tonsils, by treating infected cervices by electrocoagulation and seminal vesicles by diathermy, by overcoming intestinal stasis and obstructive adhesions, by colonic irrigation and by using diathermy and the surging alternating current for the restoration of the muscular tone of the colon; finally, by the use of ultraviolet radiation for marked depletion, inanition and low calcium content of the blood. Without criticizing Cotton's viewpoint, there is no question but that broad statements as to wholesale favorable effects on mental disease by any forms of treatment need careful corroboration.

It was perhaps with the desire to enable the clinical application of up-to-date physical therapy, principally to pathology incidental or accompanying mental disorders, and only secondarily to mental disease itself, that the late superintendent of the Manhattan State Hospital, the lamented Floyd Haviland, asked me a little less than a year ago to become visiting physician of the physical therapy department of this institution, and it is my humble privilege to pay this tribute of respect to his vision in the following brief report of the activities carried on there following this appointment.

The department originally formed by Dr. Frederick de Kraft, of the consulting staff, was reorganized (1) by equipping it as far as possible for the efficient and safe application of all modern physical measures through rounding out its equipment and through improving the training and the routine work of its personnel; (2) by

* Physical Therapeutics, February, 1930.

organically correlating its activity to the special work of the hospital in appointing a senior physician of the hospital staff to work directly with the attending physician. It is a pleasure to state that the selection of Dr. Elizabeth Hellweg for this task has been most satisfactory and gratifying. The equipment of the department at present consists of one mercury vapor and one carbon arc lamp, two small luminous heat generators, two high frequency machines, one static machine and one galvanic-faradic sinusoidal machine, with, finally, one whirlpool bath. Hand massage and therapeutic exercise was used in conjunction with this apparato-therapy. The hydrotherapy equipment, that should form an integral part of a fully equipped physical therapy department, is unfortunately located in another part of the building and so is entirely outside of our control. This is a handicap in correlating and evaluating the use of this important measure with that of other essential forms of physical treatment, especially when treating definite mental cases.

After the physical rearrangement and an intensive post-graduate course in technic for the chief technician and her assistant and some clinical and theoretical work for our associate, Dr. Hellweg, the department was in fairly acceptable working order by the fall of 1929 thus the report of its activities covers scarcely more than half a year. The major work of the department consisted in treating associated neurological, traumatic, acute and chronic surgical, general medical, skin and miscellaneous conditions in patients and also in a fairly large number of hospital employees. Only a small number of purely mental cases were treated but, as most of these were advanced conditions, a half year's observation is not a sufficiently long period to report as yet in regard to the results of treatment. They consisted of a few cases of dementia præcox and post-encephalitis, and were treated with general stimulative measures: ultraviolet radiation or the static bath; some of the post-encephalitis patients also received cerebral galvanism. It was our impression that in dementia præcox patients who had not deteriorated too far, there was some improvement of their mental state and the cases became more easily manageable, while some of the encephalitis patients became more alert and showed more emotional stability;

most of these cases also showed improvement in their general physical condition, weight and nutrition.

The great bulk of patients requiring treatment in the physical therapy department were surgical or orthopedic in variety, including fractures and other traumatic conditions, arthritis, myositis, edemas, foot disabilities, atrophies, sinuses, etc. The average result in these cases was very good and it was surprising how well most of the patients with mental conditions liked our treatments. There is no question in my mind that the attention given to incidental conditions in these patients is well repaid by the favorable reaction on their psychic state.

In neurological conditions we handled several patients with peripheral neuritis (post-diphtheric and facial), and by the use of thermal measures and exercising currents we were able to stimulate nutrition and earlier return of function. Among general medical conditions we had referred to us a fairly large number of cases of anemia and malnutrition, associated with mental conditions, and in most of these there was a prompt response to general ultraviolet irradiation. In some cases of bronchial asthma the combination of diathermy through the chest and general ultraviolet irradiation proved of decided benefit. Other patients in this category were a few with pulmonary tuberculosis and pleurisy; a few cases of frontal sinusitis; discharging otitis media, the latter successfully managed by the prolonged administration of luminous heat. Among skin conditions we handled many cases of ulcers, some of them luetic, and in about one half of these the treatment by whirlpool bath or carbon arc irradiation proved quite satisfactory; there were also some cases of eczema, acne and psoriasis.

Conclusions

From the above brief resumé it can be seen that there is a fertile field for the application of physical measures in a mental hospital. It is especially in the large variety of associated and incidental pathology outside of the central nervous system where the well chosen and efficient use of physical measures cannot fail to exert more or less favorable influence on the existing mental condition. The direct treatment of mental disease, organic or otherwise, by physical measures is as yet largely an uncharted field.

GASTROENTEROLOGY IN PSYCHOPATHIC PATIENTS

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In both the psychoses and the psychoneuroses the gastro-intestinal symptoms are frequently so marked that they were believed to be causally related by early observers. Thus the word melancholia, etymologically, means black bile and hypochondria means below the ribs, that is the abdominal region.

The alimentary tract is completely controlled by the vegetative nervous system in its two divisions, the sympathetic and parasympathetic which act in antagonistic relationship to each other. Psychic insults result in changes in gastro-intestinal function through the medium of this system. Nerve fibers that result in stimulation to the musculature and secretions of the gastro-intestinal canal are present in the vagus and sacral nerves. Inhibitory fibers to the same organs are present in the sympathetic nerves. Whether centers exist in the cortex for the control of digestive functions is still unproved for man but in animals tracts connecting such centers with the midbrain have been demonstrated.

The process of digestion consists of a psychic as well as a physico-chemical phase. The mind can affect the digestive processes as well as it can be affected by changes in the gastro-intestinal tract. The importance of the emotions and of conditioned reflexes on digestion has been definitely established by Pavlow and his school. He pointed out the importance of psychic gastric secretion in the initial stage of digestion. The well known experiments by Beaumont on Alexis St. Martin demonstrated marked secretory and motor depression to result from the emotions of anger or disappointment. It is common knowledge that fright can cause epigastric pain, that fear can give rise to diarrhoea, that depression can result in anorexia and that anger may even cause jaundice.

The gastro-intestinal symptoms in the psychoneuroses and in the psychoses are similar to those present in so-called "functional dyspepsia" of the older clinicians of the school of Ewald and Boas. These symptoms include anorexia with nausea or vomiting, globus, localized or generalized abdominal pains, constipation or diarrhoea and flatulence. But these symptoms are frequently similar to those

that occur in organic disease of the stomach, intestine or liver and with improved methods in the use of the Roentgen ray, the sigmoidoscope and the gastro-duodenal tube many of the cases formerly classed as functional "gastric neuroses" are now found to be cases of cholecystitis, ulcer or other organic disease that were formerly unrecognized. Today, with the exception of cardiospasm and Hirschsprung's disease of the colon, the cases that were formerly classed as neuroses of the gastro-intestinal tract by the school of Ewald and Boas are now viewed as psychoneuroses with manifestations in the gastro-intestinal tract.

In psychopathic patients gastroenterological methods of diagnosis must be employed with a greater degree of discretion and gentleness than in mentally normal cases since the cooperation of the patient is necessary to carry them out properly. For example, in the Roentgen examination of the gastro-intestinal tract the barium meal must be made very palatable or the patient will expectorate or vomit the fluid and in administering a barium enema it must flow very slowly so that no reaction of fear is aroused which might result in the expulsion of the mixture. In passing a duodenal or gastric tube special precaution must be taken against the patient biting the tube and swallowing the proximal end or biting the finger of the physician. In the use of the sigmoidoscope there is danger of perforating the gut if the patient should move suddenly. This examination should not be performed if there is any question of cooperation on the part of the patient.

In the examination of a psychopathic patient it is found that the degree of sensitiveness to pain bears no relationship to the degree of the psychic disorder. Normal people show wide variations in their reactions to similar painful stimuli. In order to determine whether a person's complaints are exaggerated it is important to know whether hypersensitiveness or hyposensitiveness to pain is present. This can be determined by noting in what manner the patient's reaction to known painful stimuli deviates from the normal. In normal individuals mild pressure over the eyeball or the styloid process of the ear or the ulnar nerve at the elbow causes a sensation of pain to which the patient complains in a moderate controlled manner. In hypersensitive individuals the reaction to such tests is uncontrolled and out of proportion to the amount of dis-

comfort that is caused. In hyposensitive people there is very little or no protest made to even strong pressure over these normally sensitive points. Hypersensitiveness to pain is independent of the degree of the nervous irritability present in a particular case, as judged by the muscle or tendon reflexes. It is also independent of the status of the psychic sensitivity as determined by the patients emotional reactions. Complaints of pain in a hyposensitive individual are to be respected but in a hypersensitive person they are to be discounted in proportion to the degree of excessive response to the pain tests mentioned.

In the true psychoses including dementia præcox, paranoia and manic-depressive insanity, gastro-intestinal symptoms rarely come to the foreground. Studies of the secretory and motor activities of the stomach in manic-depressive insanity have failed to show any constant findings parallel to the excited or depressed mental status. In the melancholias physical complaints are not frequent, due to the mental depression present. However, constipation is nearly always associated and at times may become so severe as to simulate ileus. In fact operations for the latter condition have been known to be performed, so closely can it be mimicked by the atony of the bowel in melancholia. It was formerly believed that constipation was causally related to melancholia but the more recent view is that it is a result of the mental depression. The gastro-intestinal symptoms of hysteria are manifold. The most common complaint is anorexia and not infrequently it occurs in a severe form, "anorexia nervosa." In this condition the patient may refuse food for long periods of time and even resist artificial alimentation so that fatal cases have occurred. Vomiting is another common symptom present in hysteria. However, the vomiting is usually of an incomplete form, either just regurgitation or only partial evacuation of the gastric contents, so that little or no weight is lost.

The anxiety neuroses constitute the large group of patients who present somatic complaints based on psychic disturbances. In this group the somatic complaint is most frequently related to the gastro-intestinal tract. The psychic condition may have been brought on by psychic trauma, economic, sexual or social maladjustments with which the patient cannot contend and the sublimation of the

particular mental conflict upon the somatic complaint usually masks the true difficulty. These patients are usually of the neurotic type; that is, they are of the asthenic habitus, of small bony frame with a low position of the abdominal viscera. They are temperamental, hypersensitive, morbidly introspective and are commonly called hypochondriacs. They readily entertain a fear that their complaints are due to some dreaded disease and not infrequently they develop cancer phobia if some member of the family has the disease or if the malady is strongly suggested to them by reading or lecture. While their complaints are usually severe the physical findings obtained are normal or show only minor functional secretory or motor changes in the gastro-intestinal tract. These patients are frequently told by hasty physicians that there is nothing the matter with them and with keen disappointment with the medical profession they fall into the hands of the pseudo-scientific cults and healers. It is not the psychiatrist but the general practitioner of medicine who is first consulted by these mild psychiatric cases and while it is difficult for the average physician busy with general medical practice to treat these cases, a large proportion of them would be benefited if physicians generally would recognize the fact that the complaints of a neurotic individual are as real to him as are those of an organic disease to a mentally normal person. Neuropsychiatry has become too intricate and difficult a specialty for the medical internist or practitioner to master. The differential diagnosis of the more involved psychoses or psychoneuroses and their treatment are beyond his training and experience. However the mild forms of the neuroses fall within his power if a little tolerance, human understanding, encouragement and suggestion are brought to bear.

The fact that a patient is of a neurotic temperament must not throw us off guard by accounting for all the symptoms present on the basis of a neurosis. It is necessary to rule out disease in the appendix, gall bladder, stomach and colon. Not infrequently a neurotic patient has an organic disease which a mentally normal person would tolerate but to which he reacts to such an extent that he is incapacitated not only economically but also socially. Removal of the offending organ while not removing the neurotic nature of the individual can restore his independence.

DENTAL DEFORMITIES AND MENTAL HYGIENE

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In our ambitious program of mental prophylaxis, we frequently neglect to observe that failure to correct dental deformities may frustrate our plans for mental rehabilitation, especially in our attempts to socialize or stimulate individuals to seek contacts with real life.

By dental deformities, we refer to protruding and rotated anterior teeth, to overdeveloped alveolar ridges which have a tendency to protrude the lips, to disfigurements resulting from surgical intervention, trauma and various diseases.

In the dental treatment of our patients, the elimination of foci of infection is of great importance, nevertheless each patient is treated as an individual problem and no dental tissues are removed if more conservative measures can restore them to normal function.

We find that too many teeth have been needlessly sacrificed at the altar of focal infection and that the resulting bony deformities have made it very difficult for the patient to receive an esthetic dental restoration to replace the lost tissue.

Dental prosthesis is undoubtedly a valuable adjuvant in our approach to patients with mental disorders. Those patients with obvious dental deformities react to them as they would to any life situation which creates a serious feeling of inferiority with its well-known psychic sequelae.

In the organic period when emotional instability is so frequently prominent, we have the greatest incidence of dental deformities and cosmetic problems. It is obvious that in some cases the dental problems I mentioned above, are the immediate situations to which these patients react in their characteristic exaggerated manner.

The following is a striking example of the role the dental surgeon can play in facilitating the adjustment in cases of this type.

CASE No. 1: Patient male, age 68. Family history: negative. Admitted to this hospital, October 4, 1928. In 1912, the patient was operated upon in the New York Skin and Cancer Hospital for cancer of the mouth. A portion of the hard palate on the right side

was removed from the median line, including the alveolar ridges and extending posteriorly to the zygomatic process. Part of the malar bone was also removed, resulting in severe disfigurement of the face and a harsh nasal tone to the voice. Upon admission here, the patient was markedly depressed and had suicidal tendencies. Examination of his mouth soon after admission, revealed the presence of the deformities above mentioned. (Fig. No. 1 and No. 2.) In addition it was noted that the patient had no teeth, either in the upper or lower jaws. The patient experienced great difficulty in talking and in eating, as food regurgitated through the palatal perforation from his mouth, into the nose. He was depressed, and told the writer that his condition was hopeless, and that nothing could be done for him. On January 24, 1929, upper and lower artificial dentures were made with an obturator attached to the upper plate, which extended into, and covered the palatal deformity, building up the tissues on the facial side, the symmetry of which had been lost due to the removal of the malar bone. In order to stabilize both plates, and to retain the upper one, spiral springs were attached to both plates. The result was most satisfactory from a dental viewpoint, as the patient was able to talk more easily and distinctly and was able to masticate his food without having it regurgitate through his nose. His general condition improved concomitantly. (Fig. No. 3 and No. 4.) Patient was presented at staff meeting on January 4, 1929, at which time the diagnosis psychosis with cerebral arteriosclerosis, depressed, was made. Quoting from the summary: "This psychosis was characterized by a period of depression largely a reaction to his facial deformity, and due to the inability of the patient to masticate his food and to talk properly. There was no history of previous depression or serious maladjustment. On March 5, 1930, it was noted that the patient had improved considerably. He feels more cheerful, and is no longer depressed."

Case No. 2: Patient F. W., male, age 72, married. Family history: negative. Admitted to this hospital July 28, 1928. Patient was a farmer, a hard worker and a good provider. On July 10, 1928, he was operated on in the New York Skin and Cancer Hospital, for epithelioma of the lip on the left side. It is interesting to note that the patient had a habit of holding a pipe in his mouth continually on that side, pressing his lip against his sharp broken

teeth. (Fig. No. 5 and No. 6.) The operation at the Skin and Cancer Hospital consisted of the removal of a large portion of the lower lip which extended well down the chin. A plastic operation was performed to form a new lip from the cheeks on both sides. On July 12 patient became restless, confused and disoriented and was sent to Bellevue Hospital where he was noted to be markedly excited. He was admitted to this hospital on July 28. Upon admission, a marked V-shape deformity was noted on the lower lip. His mouth was badly neglected, as he had never been to a dentist before. His teeth were badly worn down, and pyorrhetic. Saliva drooled from the deformed lip and the patient complained of difficulty in chewing, and of the marked discomfort caused by the saliva drooling from his lip on to his clothes. On January 14, 1929, his teeth were cleaned and polished. The loose pyorrhetic protruding teeth were removed and a dental plate was constructed, replacing the missing teeth. (Fig. No. 7 and No. 8.) On March 14, 1929, the patient was operated upon by Dr. Bainbridge, who performed a plastic operation on the lip, correcting the V-shape deformity. On March 26, it was noted that the site of the operation had entirely healed, and that the patient did not drool saliva.

Patient continued to improve mentally and physically. On July 11 the diagnosis, psychosis with other somatic diseases was made, and on June 3, 1929, he was paroled.

Patient was interviewed by a social service worker on December 29, who reported that he is making a good adjustment at home.

These are merely fragments of the clinical material that passes through our hands where physical deformities play a potent role in pathogenesis of the mental syndrome. The dental surgeon along with other medical specialties can thus contribute his experience and knowledge in the important field of mental prophylaxis and therapy.

ABOUT DREAMS WITH UNPLEASANT CONTENT*

BY DR. FRANZ ALEXANDER,
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It has become almost a tradition in our science that new results and conceptions should be confronted with the theory of dreams which is without doubt the best founded portion of the whole psychoanalytic theory. I feel it as a gap in the psychoanalytic literature of recent years that new views of the ego have not yet been tested by the dream theory. Until lately we knew very little about the rôle of the ego in contributing material to dreams as a dream was considered a manifestation of repressed wishes. According to this view the function of the ego is only a distortion of the repressed psychic content which is incompatible with the conscious personality whereas the material of the dream is the creation of repressed wishes. The theory is that the latent meaning of the dream is the product of the repressed mental forces and that only the transformation of this despised latent content into the harmless manifest dream is due to the repressing ego which, however, does not itself contribute to the latent meaning of dreams. Nevertheless Freud suggests not, to be sure, in his book, "Interpretation of Dreams," but in the later additional chapters on dream interpretation—that on the formation of dreams with unpleasant content, for example of so-called punishment dreams the ego may participate to a larger extent than in other kinds.

Dreams with unpleasant content are often in apparent contradiction to the wish-fulfillment theory of dreaming. In many cases, however, it is easy to show that behind the manifest unpleasant content there is hidden a repressed wish. Since we know the important rôle of self-punishing tendencies in mental life, there is no difficulty in understanding many unpleasant dreams as fulfillments of such tendencies and these punishment dreams are very instructive for the study of the exact nature of self-destructive tendencies. The general conception, however, is that in dreams the pleasure principle has a much wider influence than in the mental processes of the day and that the dream is the domain of wishes which reality and own inhibitions hinder in their realization. Therefore, it is hard to imagine that in this domain of wish-fulfillments the inhibiting and restricting mental forces can play a creative rôle. We have

* Presented at meeting of American Psychoanalytic Association in Washington, May 8, 1930.

learned that these repressing forces are merely disturbing factors responsible only for the distorted representation of genuine wishes. Yet it seems that we have underestimated the dynamic possibilities of the socially adjusted part of personality and that we have also underestimated the degree to which this part—I mean the super-ego—has become an organic part of the mental apparatus. We always knew, that not even in dreams can we escape from the inhibiting influence of the super-ego but what I want to show you now is that the super-ego has not only a distorting function in dreams but is also able to create dreams as are the repressed tendencies of the id.

In the system of total personality the super-ego lives its own life, having tendencies of its own, which if inhibited in their satisfaction may disturb the sleep as well as repressed asocial tendencies do. Thus we can speak of damned-up tendencies of conscience as well as of a damned-up libido.

May I bring you a simple example to illustrate these facts.

Probably everyone of you has had as a school boy a typical kind of dream which Freud assigns to the class of "comfort dreams." One has to go to school early in the morning and after being awakened one decides to remain in bed for some minutes longer, then one falls asleep again and in dream one sees himself in the school room in which the lesson is just beginning. Freud calls this kind of dreams "comfort dreams" and assumes that they arise on the same principle as thirst-dreams and urination-dreams. In the latter an organic need such as thirst or the tension of the bladder disturbs the sleep and the dream has the function of protecting the sleep through a hallucinatory satisfaction of the disturbing needs. In the school dream not an organic need but the sense of duty to get up and to go into the school is the factor which disturbs sleep. This sense of duty is, however, not a repressed wish at all, in the contrary it is a pronounced social motive, a typical case of a demand of the super-ego. This dream protects the sleep through a hallucinatory fulfillment of a disagreeable duty or on other words of a demand of conscience.

This example alone would be sufficient to prove that conscience tensions may create dreams as well as repressed or unsatisfied wishes. Nevertheless I should like to cite two more complicated examples.

The first dream I am going to describe was reported during a psycho-analytic treatment by a young business man, a hypochondriac, who lost his money during the inflation in Germany and at the time of his dream was just on the way to re-establishing himself. To understand the dream it is necessary to know his actual circumstances. After his financial breakdown his older brother helped him and in the weeks preceding the dream he was in a difficult conflict with his conscience. He played with the idea of buying a new motor car since he had to sell his own beautiful car when he lost his money. The conflict in him was caused by the fact, that his brother had lent him money for business investments and not for the purpose of buying a new car. Finally the devil gained the upper hand and he bought a small car. Just on the day following the dream he planned to make his first trip in it with his wife and on the night preceding the excursion he had the following dream:

"I am driving in my wonderful big white car which I owned before my breakdown. My wife is with me, we are just passing the market place of a small provincial town and we have to drive slowly. I hear people in the market place speaking about me, they point with fingers at me saying: 'That is the profiteer, Mr. B.' It was a terrible experience."

He woke up in anxiety bathed in cold perspiration. The first feeling he had after waking up was the intense relief that it was only a dream and next came the thought of the planned motor car trip with a pronounced pleasure which he expressed in the following way: "How silly this dream was since tomorrow I am going for a drive anyway but in my small new car."

In the further associations the patient described his feelings towards his older brother and we succeeded in tracing the deeper sources of his sense of guilt connected with the motor car. It became evident that this was a reaction to the repressed envy he felt towards his successful brother who owned a beautiful and powerful car. The car was but a symbol of everything for which he envied his brother, that is, his abilities, money, success with women, etc.

This dream is a clear case of a punishment dream and was produced merely by the claims of his conscience. He went to sleep with an intense sense of guilt provoked through the planned excursion

which he was going to make in the new car, that is in the symbol of his negative affects towards his brother. The dream served to relieve this sense of guilt through putting him in a painful situation. While the tension of repressed wishes can be relieved through hallucinatory pleasurable satisfactions, the demands of the conscience can only be fulfilled by punishment, by suffering or by sacrifice. The advantage the dreamer had from his dream was that he quieted his conscience in a decently comfortable way. In his dream he lived in the past and phantasied a painful situation as a profiteer which was no longer the case with him.

Besides that he succeeded in his dream in exchanging the severe sense of guilt he felt towards his brother for another but milder conflict, that is with the social guilt feeling of a profiteer which he had had in the period of inflation on account of making much money in an easy but somewhat disreputable way.

To sum up: The dream was an attempt to get rid of his sense of guilt in the easiest possible way. He had to suffer, that was unavoidable for his conscience was stirred up by the purchase of the motor car and the tendency of the dream was to reduce the necessary self-punishment as much as possible. The influence of the pleasure principle in such a mental situation can only be towards the diminishing of unavoidable psychic pain. As a matter of fact his dream succeeded in restoring his disturbed mental balance so that he could make his excursion the next day with an easy conscience, having paid the price for it by the painful experiences of the preceding night.

Another dream may serve to elucidate even more the purpose which unpleasant dreams have of relieving conscience and thus permitting sleep. It was dreamed by a puritanical young married man in a period of his analysis in which he began to become aware of his repressed extra-marital wishes. He had lived since his marriage in the belief that no woman except his wife existed for him and denied even the possibility of extra-marital wishes. This was the dream:

"It seemed that I was rather a small boy and that I and a small girl of the same age were about to get into bed. I believe that the bed was the same one in which I used to sleep about that age. A man was already lying in the bed. As I put my right foot up to

the bed in preparation to get in the man pointed to my toes which were rather dirty and I felt ashamed that I did not wash them. My foot then was its present size rather than that of a small boy." He associated to the dream at first an advertisement for cornplasters which consisted of a foot with small electric lights in the toes to represent the corns. There was also a hand pointing to one of them. He saw this cornplaster advertisement on the street the day preceding the dream. The small girl reminded him of a girl cousin with whom he had his first puppy love affair in his childhood. They kissed and hugged and on one occasion practiced mutual exhibition. Another girl stood on guard to warn them if anyone should approach.

As already mentioned the patient dreamt this dream at a time when he began to recognize his extra-marital wishes which until that time he had succeeded in repressing. These wishes, brought nearer to consciousness, provoked a conscience reaction that is a fear. He also remembered that the evening before on going home late he was accosted by prostitutes. He passed the same corner almost every night but this was the first time that he had been accosted. It is easy to assume that he was accosted because that was the first time that he had looked at the women and that this gave them the courage to address him. He had this dream at a time when the conflict between his puritanical ideals and his repressed extra-marital wishes was stronger than ever. In the dream he imagined an old forbidden sexual situation, namely, the first one of his life instead of his present one. He was in a similar mood when he went to bed as he was in his childhood when he had his first sexual experience with his cousin for which he felt guilty. He did in his dream something similar to the man with the motor car dream namely he substituted a conflict of the past for his present conflict situation.

The second purpose of the dream consists in the replacement of an expected severe punishment of unknown character by a trifle. The man in the bed points to the dirty toes and the boy is ashamed that he did not wash them. In the dream he is just about to commit a forbidden sexual act with the girl but he was not rebuked for this offense but for a much smaller sin that is of having dirty toes. Knowing the symbolic meaning of toes we understand that the

menacing finger pointing to his toes refers to the genitals which he replaced by the toe. Although this dream was a very unpleasant one connected with fear and shame, it nevertheless saved him from a much worse fear being attacked in his genitals on account of his forbidden sexual wishes.

The tendency of the dream was to comfort himself by saying that his aroused extra-marital wishes have no greater significance than that of having dirty toes. The dream was produced by the sense of guilt which he had on going to sleep after having met the prostitutes. Thus guilty feeling was a repetition of similar fears of his childhood, namely the fear of castration and he succeeded through the dream in substituting for this fear a milder form of an unpleasant affect, namely the shame of being dirty. Both of these unpleasant dreams had the tendency to save the sleeper from a fear-reaction. The conscience which is aroused demands like a hungry divinity his rights and the best the dreamer can do with his unexpiable conscience is to give it the cheapest possible satisfaction.

I hope that I have succeeded in proving that not only repressed wishes but also the socially adjusted part of the personality, that is, our normal feelings, are able to produce dreams which are in a larger sense wish-fulfillments, although not fulfillments of asocial repressed wishes but of the claims of conscience. Guilt-feelings or the sense of duty disturb the sleep as well as any genuine wish, which I could demonstrate in the simplest way by the school dream.

To do justice to this fact we have to choose the most general of the Freudian formulations, namely that the dream is an attempt to protect sleep by the aid of hallucinatory processes which are suitable to relieve disturbing tensions. We have to add, however, that these tensions may have quite different sources such as organic stimuli, unfulfilled or repressed genuine wishes as well as the claims of conscience.

These considerations may corroborate the conception which I tried to work out in another place, that the socially adjusted part of our personality, the super-ego, has to be considered as an organically assimilated part of the mental apparatus with dynamic effects similar to those of the original, unadjusted impulses of the id.

THE FUTURE OF MATTEAWAN STATE HOSPITAL IN ITS RELATIONS TO OTHER STATE HOSPITALS*

BY JOSEPH W. MOORE, M. D.,
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If, in this communication I seem to be treading upon dangerous ground, in mentioning the breaking down of the mutually fortified line of defense between the criminal and the civil hospitals, be it understood that my remarks are only suggestions and in all probability they will follow into oblivion a host of similar proposals whose neglect nevertheless does not seem to greatly disturb the march of progress. Granted however, that a proper spirit of liaison exists between them, is it not possible for each of the two types of hospital to make use of the special facilities of the other? Matteawan has many patients who, we shall see, should be in civil hospitals, and I know there are many in the civil hospitals who would have been sent to us long since had it not been for the wise forebearance of the mental hygiene commissioners who have occupied that office during recent years. In short, this is frankly a proposal couched in the involved language of diplomacy, that there may arise reasons why a freer interchange of patients between Matteawan and the other hospitals may be advantageous and economical. With the help of new construction overcrowding at Matteawan has vanished for the present and the civil hospitals are approaching a degree of housing affluence they have not known for years. The question may be asked then: What object can there be at the present time for disturbng the status quo? There are two reasons: one is that the future must be prepared for and the other, that it is excellent policy to be a lap ahead of any movement which has the public sympathy. The apotheosis of the criminal is now the order of the day and the measure of one's popularity is apt to be the softness of the feathers with which one can stuff the malefactors couch. We can sagely claim in this instance that we are interested in removing an injustice to insane people who are wrongly housed with criminals and thus make of an economical expedient a humanitarian crusade. As a matter of fact since the treatment and general regime at Matteawan is as near that of the civil hospitals as that standard may be approached by others, I

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have not much personal sympathy with most of the complaints of our patients including that often-mentioned one—the stigma of criminality. There are few of them whose aura of unsavoriness does not overlap that of the others by as much as it is overlapped. Similarly the alleged objection which patients in civil hospitals have to associating with patients who have been in Matteawan is capable of a very sensible reduction if the ex-criminals are good workers.

In an attempt to lay the ghost of the dread of the criminal insane it should be pointed out that our patients are not much different from any others. Their crimes are mere accidents or incidents and in the great majority the term "criminal insane" is a misnomer. The law instead of stating that an insane person shall not be held accountable for his crime, says specifically: "An act committed by an insane person is not a crime" (Penal Law 1120). Therefore as nearly all were insane before the alleged acts, those acts could not be crimes. Furthermore, nearly two-thirds of our population have never been tried and are therefore, by no means proven criminals. By way of explanation for those who are not familiar with the correction law, Matteawan receives two main groups of cases: those who are found insane before trial or sentence and who are to be kept by us until mentally restored and then returned to court, and those who become insane while serving sentence. Of the latter group, since Dannemora State Hospital was established for convicted felons, we take only misdemeanants. A further source of admission is by transfer from civil hospitals of patients who have been previously convicted of crime or have previously been in Matteawan and who still exhibit "criminal tendencies." Of these groups our present population contains the following. Convicts 435, cases held on court orders 715, transferred cases 25.

Let us look into the future with eyes that are practical, penological and political. Matteawan's most important function is the care of those cases committed to it direct from the courts. I think no one can dispute that. Although there are many difficulties to be ironed out Dr. Kieb's plan of having all cases pleading insanity at trials sent to Matteawan for observation instead of being examined by commissions, will certainly become regular procedure and

will add greatly to the population. Now a population of 1,500 is agreed to be a maximum for a prison and this figure should, to an even greater degree be the largest number that Matteawan should ever be called upon to care for. To emphasize this we may mention that our population contains 183 murderers and 135 who have made homicidal assaults. In three years our census will have passed the 1,500 mark as we are receiving and discharging at present and it is none too early to speak of what is to be done about it. The most rational course is to eliminate first those of our patients who can be cared for just as well in other hospitals. We have 435 patients who were sent here while serving sentence and at least 400 of these have long since served their time and are held only by the parens patriae power of the State just as in the civil hospitals. In some few instances they are patients whom it would be safer to keep in Matteawan but most of them not only are suitable for civil hospital care but should never have been sent anywhere else. A few samples of the number of minor crimes will be instructive: 94 were vagrants, 15 were tramps, 66 were disorderly, 5 were wayward minors, 8 were convicted of non-support, 3 of injury to property, 22 of public intoxication. At least 25 of these were guilty of offenses which the law has held are not crimes (Code of Criminal Procedure 899).

Lest alarm should be felt at the threat that the Department of Mental Hygiene might have 400 criminals dropped on their hands, it would be well to point out that no legal machinery exists at present for the compelling of such transfers and the department is located in Albany. However, Matteawan should be reduced eventually to only those patients over whom police power has to be exercised, and legal means found either of committing misdemeanants directly to civil hospitals from penitentiaries or of providing for their transfer at expiration of sentence.

Another means of keeping Matteawan from again reaching the dangerous state of overcrowding which has obtained for many years, lies in the matter of parole (and here also our relations with the civil hospitals are involved). We have never had a parole system, probably for the reason that we take from all parts of the State and could not undertake parole supervision over this wide area. Commitment to Matteawan of a patient found insane before

trial is equivalent to commitment for life if he has a non-recoverable form of insanity. He is sent to us to remain until he is restored to his right mind and the test of this is that he must be able to consult with counsel and undertake his defense. Many patients reach a condition in which they would be quite safe under good supervision outside and many who have large means could be safely sent to private hospitals, but we cannot release them since they can be discharged only by return to court and that step is impossible because they are not entirely restored mentally. We have many bitter complaints from these patients and naturally, much litigation. It is pointed out in their cases that they are confined as criminals although never proven to be such; that they are deprived of their constitutional right to a speedy trial of the alleged offenses. It does seem to amount to injustice in many cases but the total lack of any parole system is where lies the most serious trouble. Now, however, with the parole facilities of the Department of Correction greatly expanded and the constantly improving out-patient service of the State hospitals, it would seem that an arrangement could be made by which our patients when paroled could report to one or the other of these agencies and thus be kept track of. Of course the law would have to be extensively changed in those sections by which patients are committed to us from the courts, but I can see no reason why a patient indicted for a crime and sent to us should not be paroled after a length of time equivalent at most to the maximum of the sentence which he might have received if convicted of that crime. His legal status would be the same as if the courts had discharged him with indictment pending or on suspended sentence.

Naturally, as in all transactions, an acquiescence in any of the suggestions just made awaits a statement of the quid pro quo. Matteawan cannot offer a great deal on its side but there could be a liberalizing of privilege of transfer to us from other hospitals. The term "criminal tendencies," is of course an absurd criterion of eligibility to such a promotion. The purloining of a pin can be construed as larceny, the finding of a match as an attempted arson. As a matter of fact most of those who have been transferred to us have no criminal tendencies beyond the disorderliness of a manic-depressive or the threatening abuse of paranoiacs. Seventeen of

the 25 are good working patients and only three can be classed as at all dangerous. Would it not be more sensible to limit the transfer to Matteawan to cases who commit homicides or make attempts to kill and permit such a transfer upon furnishing of adequate proof to the commissioner regardless of whether or not the patient was previously convicted of a crime? The previous crimes of those whom we now receive by transfer are usually trifling misdemeanors while a really vicious and dangerous patient can only be sent here by the cumbrous and dubious process of taking his case to the grand jury, having him indicted for a crime which the law says is not a crime, and then having him examined and committed as a court case. The purpose of limitation of transfer to patients who have a tendency to homicide is that we obviously could not receive even a small percentage of the patients who are simply badly disturbed and who may injure someone in the course of handling them. Nor are there any other criminal tendencies which really require the special equipment of our hospital. The treacherous and scheming patient on the other hand who is a constant danger in an open ward and whose prolonged isolation or restraint doesn't look well in the reports is one whose transfer will be of great relief to any superintendent.

Having shown the advantage of the subtraction end of the argument, a few words are in order to show that the addition end is not without its benefits. At the risk of appearing to advertise we might say that at least two superintendents are ready to furnish testimonials to the effect that a transfer from Matteawan acts on their personnel and their output like feeding fresh vegetables to a vitamin-starved rabbit. To draw a comparison of such a transfer with one from another hospital would be to start a dangerous series of recriminations.

May I say again that the object of this paper is only to open a discussion. No plea is made, no definite plan offered. I am not even sure of the reaction of the two commissioners concerned. A future need is pointed out together with a possible remedy which would be so gradual in its enactment and so ultimately agreeable that the civil hospitals instead of having a sense of being imposed upon will indulge in retrospective regret that the change was not made years ago.

TYPES OF CRIMINAL INSANE*

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This paper is not presented with any idea of being a clinical study of the criminal insane, but is simply an attempt to describe some of our types of cases so that you who are visiting here may have a better conception of some of our problems.

Insanity is insanity wherever one goes, but variations from the textbook pictures are common and I think we have variations here that are not as frequently met in the civil hospitals. Having been trained in psychiatry in a civil hospital, it was naturally with considerable interest that I began to study these patients.

I was first impressed by the fact that the patients as a whole seemed different. Types of patients that were common in civil hospitals were rare here. Cases that, fortunately, were relatively rare in civil hospitals were, unfortunately, quite common here. I made a short study as to the relative frequency of the various psychoses in first admissions here and in civil hospitals. The percentages are based on figures taken from the annual report of the Department of Mental Hygiene for the year 1928.

One thing that impressed me was the absence of the old infirm patients. We had some, of course, but the number as compared with the civil hospitals was small. The arteriosclerotic patients make up almost 12 per cent (11.8) of first admissions in the civil hospitals. Here they make up only about 0.74 per cent. This may be due to the fact that the disease is usually recognized and commitment occurs before they commit anti-social acts. It may be, that, the psychosis itself does not lead to infractions of the law as much as do other types.

Our percentage of senile admissions is only 2.9 compared with 10.4 in civil hospitals. Those that we do get are as a rule arrested because of sexual acts. There seems to be a transitory increase in sex desire with diminution of ability which leads to exhibitionism or perversions usually with children.

Our percentage of cases of general paralysis is smaller than in civil hospitals. We have about 5.2 per cent compared wih 10.7 per cent. One might expect that we would have a larger number, as

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this condition very readily leads to criminal acts. There may be several reasons for this. The condition is more easily recognized and in most cases positive serology gives definite proof of the disease. With definite proof, there is a willingness on the part of officials to drop indictments and thus allow commitment to a civil institution.

We seldom see a very active disturbed manic patient on admission. This may be due to the fact that at times the wheels of justice move slowly and the patient gets over the acute stage before arrival here, or the diagnosis may be so plain that no action is taken against him and he is committed to a civil hospital. Our percentage of manic-depressive cases is 8.9; in civil hospitals 13.9.

Dementia præcox here as in civil hospitals make up the single largest group of first admissions. Here it runs 48.5 per cent as compared with 27 per cent in civil State hospitals. As might be expected the paranoid type is by far the most common. The simple type is extremely rare.

Our cases of paranoia run about 2.9 per cent compared with a fraction of 1 per cent: Our percentage of cases with mental deficiency is 4.5 compared with 2.7. This may be due to the fact that the criminal class from which we draw our patients is more largely composed of mental deficients, or it may be due to the fact that mental deficients, as criminals, are more apt to be apprehended.

Possibly the most troublesome class and the one in which there is the greatest difference between the civil hospital and Matteawan is the psychopathic group. In this group our percentage of first admissions was 12 compared with 1.8 in the civil hospitals. We find the so-called prison psychosis in this group and also as an acute exacerbation in a chronic or latent schizophrenia. The prison psychosis appears at times as an anxious depression with vague unsystematized delusions of persecution, or it may appear as an emotional explosion of rage, irritability and depression. This last type is especially common in the psychopathic girls whom we receive. These girls are usually sentenced for prostitution or allied offenses. For a time they get along alright in Bedford, then some slight or fancied grievance occurs and they blow up, assault a matron, break out 15 or 20 panes of glass and are placed in seclu-

sion, where they shout and scream, destroy their clothes, and then become depressed, refuse to talk or eat, and occasionally make half-hearted attempts at suicide. In a way, the prison psychosis is successful; it usually gets the individual out of prison, and when in a hospital, he, as a rule, quickly recovers.

We occasionally see a malingerer but not as often as one might expect. The average individual, unless he has a pretty serious charge, or unless he is a fourth offender, would prefer to be in prison under a definite sentence than here for an indefinite period. Some of the attempts at malingering are very skillful. The poor attempts do not get as far as Matteawan. Some of these cases have had previous residences in State hospitals, and their observations there are of great assistance to them. They usually claim hallucinations, appear seclusive and indifferent and at times talk to themselves. Constant observation and a careful study of the case usually, we think, gives the correct answer.

Our aim, of course, as in the civil hospitals is to bring about more recoveries and so send more patients out. It is a little more difficult with us, as we cannot afford to take chances. In the civil hospitals, if an individual has been a law-abiding citizen and appears in pretty fair shape, there is a tendency to let him go. With us, we do not have the law-abiding citizens, nor do we have any parole system. The majority of our cases leave us to return to court to stand trial, or to prison to complete their sentence. When they leave us, they usually face a period of several weeks or months before trial or before their sentence expires. We had a man (L. H.), age on admission, 23, born in England, came to United States at the age of two. As a child he had St. Vitus dance for a time but recovered. His mother said he was always unmanageable. He was arrested when 19, charged with unlawful entry, and was given a two years' suspended sentence; arrested again when 20 he served 10 days for disorderly conduct. When 23 he was arrested on a charge of highway robbery which was thrown out, but he was re-arrested on the old charge of unlawful entry and sent to the penitentiary. While there, he became very irritable, surly and mildly depressed, assaulted another inmate, then was committed here. On admission he had few mental symptoms. He was quiet, admitted being nervous and down-hearted in the peni-

tentiary. He improved and after being here two months, was returned to the penitentiary. Four months later, he was again admitted here from the penitentiary having had violent outbursts of temper, made serious assaults, and on one occasion, he had made a definite attempt at suicide. On admission this time, he was a little unstable for a short time, but then adjusted himself well to his surroundings and showed practically nothing abnormal for two months; then he had an episode of excitement which lasted for about a week. He gradually improved and later was again returned to the penitentiary. This was two years ago and we have heard nothing further from him. We do not like to certify an individual as recovered and send him back, only to have him return to us in a short time. It is difficult for people to appreciate that a second attack may occur. In sending any case back therefore, we have to consider carefully the general stability of the individual and the amount of pressure he is going to be under. We then try to determine whether he can stand that pressure.

Cases of psychosis with psychopathic personality in which the psychosis is largely a conduct disorder with emotional instability, offer quite a problem. How long should we keep an individual here after all apparent evidence of the psychosis has disappeared? I will describe two rather interesting cases in connection with this question.

One (W. J. D.) is a male, age 36, born in New York City, eighth grade education; father died when patient was very young and he was brought up by his mother. He served in the navy for five years, receiving an honorable discharge. Eight years ago, he entered the New York City Fire Department and reached the grade of fireman, first class. Six years ago he married and immediately following the ceremony he returned to company headquarters to report for duty. The next day he was also unable to get off duty and his wife went to her home in Pennsylvania. He did not see her for about three weeks. He has occasionally registered with her for a few days at a time in hotels but he has never provided a home for her nor supported her. He continued to live with his mother and support her. Three years ago he received what was considered concussion of the brain when he was struck on the head by a ladder. He was treated at home for a few days. He used

alcohol for several years, but during the last two there has been a gradual increase in the amount. His mother gives a history, that as a boy he was very unstable.

On the morning of his arrest he was on duty, apparently in his usual health. His chief ordered him to clean some brass, which patient insisted was not his duty. An argument occurred—patient insists that he was knocked down and remembers nothing further. He actually went to his locker, took a revolver which was stored there, and shot his chief, not fatally however. He was arrested, examined by a commission who found him insane and he was sent here. Since admission he has shown very little mental disorder. He insists that he has no recollection of the crime, but admits having had a few drinks on the day the crime was committed and believes these must have been the cause of his conduct. The psychic factors seem clear. He has a marked mother attachment which led to failure of his married life. His chief was the father surrogate whom he shot. The patient is alert, sociable, agreeable, has insight and expresses remorse for his action. How long should such a man remain here in his present condition?

Again we have a boy, age 21. In school he was an apt student but was very restless, mischievous and annoying to the other children, so much so, that he was sent to various schools and finally to the Jefferson Farms school where he graduated from grammar school. Inflammatory rheumatism interfered with his high school work but he was credited with one year's work. He joined the army and his deportment improved. Unfortunately, he developed another attack of rheumatism and was discharged from the army because of physical disability. He became a salesman for the Fuller brushes and for a time was successful. Later, he did not do as well, so he secured part-time employment as a clerk and then as an elevator operator. He wanted to be a chauffeur but was unwilling to learn the mechanic's trade or work in a garage. One day at the age of 19 he was detected trying to steal a car and later the same day took another car and went for a 150-mile ride, returning the car undamaged. He was committed to a State hospital and was there for seven months when he was paroled. While on parole, he had a few positions which he held for only a short time, then he obtained a car from a garage on the pretext that he was a chauf-

feur for a prominent official. He was caught and returned to the hospital. In the hospital he was suspected of setting fire to some bedding and was very annoying to other patients. He gradually improved and after 11 months was again paroled. After being out two months, he was returned to the hospital having been arrested with a stolen auto in his possession. After being in the hospital five months, he escaped by stealing a car, went to Washington where he had an accident, was returned to New York State and committed to Matteawan. Here, he has shown some mischievous tendencies. He admits having had a great desire at times to drive a car and admits taking a car to satisfy these desires. He is alert, intelligent and sociable. At times he plays petty tricks on other patients. There is no evidence of delusions or hallucinations. It is a question, just how long he should remain here. He has had three chances so far but has failed each time. He is, of course, sure that this has been a lesson to him and that he will have no further trouble.

Then again, we have the "fire-bugs," cases of psychosis with psychopathic personality, that are charged with arson. We have for instance, one (A. A.) male, age on admission 41, native born. At the age of 27 he was arrested, accused of setting two fires in saloons where he happened to be. He was discharged for lack of evidence. Fifteen days later he was arrested in connection with two more fires, convicted and sentenced to Sing Sing for 10 years. Several years after his release he was again arrested on suspicion of arson, was in jail for six months, but owing to lack of evidence the indictment was dismissed. At the time of his last arrest, there were two fires in the basement of two houses in the same neighborhood, one of which the patient reported to a policeman who became suspicious and followed him. The patient was caught coming out of a basement in which there were two freshly lighted fires. He had been drinking, but did not appear intoxicated. He was arrested and committed here. At first he had very marked hypochondriacal complaints, dating back to an auto accident two years previous. His physical examination was essentially negative. He denies ever having committed arson, and insists that it must be a case of mistaken identity. How soon should such a man leave this hospital?

We have another type of case that is interesting, an example is that of a man (M.) who is an Italian, age 30, has lived in this country since the age of four. He received a partial high school education. From the age of 12, he suffered from epileptic seizures, at first having several a month, usually nocturnal, but under treatment they lessened in frequency and at the age of 25, he had approximately one a year. He was married at the age of 26, his wife's relatives more or less tried to run his home and business. His wife was in poor health and required an operation. Circumstances surrounding the operation caused her relatives to accuse him of wanting to get rid of his wife and to threaten him with bodily injury. His feeling gradually increased, until he finally ordered his wife's relatives to keep away from his house. One Sunday morning, his father-in-law came into the house and, the patient states, struck him with some weapon, causing a wound in the side of his head, which patient claims half dazed him. Patient took a revolver from his bureau, everything seemed to go blank. He heard the gun go off and realized that he must have shot somebody. He left the house, went to his father's home and later went to the police to whom he gave himself up, saying that he had shot his father-in-law. He can describe the events following his arrest correctly. It seems quite possible, that he had an epileptic seizure during the night, got up in the morning partially confused, his father-in-law came in, the fight started, resulting in his father-in-law's death. He has been pleasant and agreeable since admission here, denies hallucinations, has had no convulsions that we are aware of. He insists that he killed his father-in-law in self-defense. He does not express any remorse for having done this. He has been here now one and a half years.

We have another case even more striking, a negro, age 31, on admission eight years ago. As a child he had tantrums and was extremely difficult to handle. As he grew older he had periods of extreme rage and after these periods would remember nothing about them. These attacks were quite frequent. About a year before his admission here, he had a definite epileptic convulsion. On the day of his difficulty, he was walking along the street and felt a convulsion coming on. He went into a doctor's office which happened to be near and sat down. He claims to remember nothing

more. What actually happened, is that he started to take off his clothes, a policeman was called who found him walking around and around, partially disrobed. The policeman persuaded him to go to the station house. There he sat down, appeared a little dazed, said someone was trying to kill him. He was quiet however. Another policeman who was helping apply a first aid dressing on another patient, had his coat off exposing a revolver which he carried. Our patient suddenly grabbed the gun, shot and killed the policeman who had been carrying it. Quite a struggle followed in getting the gun away from him and placing him in a cell. There, he began to sing religious songs. The next day he appeared normal but had no recollection of the crime. While in prison, he had two periods when he appeared abnormal. During these periods he thought that someone was going to kill him and after these periods were over, he claimed an amnesia for them. He was seen during these periods by a physician and these attacks were diagnosed as epileptic equivalents, he was adjudged insane and sent to us. He has been here eight years. During this time, he has had no convulsions nor epileptic equivalents that we know of. He is agreeable, is a good worker, takes an interest in his surroundings, denies hallucinations and has insight into his condition. This case also presents a problem. He may have a convulsion tomorrow, he may have none the rest of his life.

This may give you an idea of some of the criminal types of insanity with which we have to deal. As you can see, it would be very easy to make a mistake in dealing with them and while we want to be fair to the patients, we also must be fair to the people of the State who might be affected if they were allowed to leave. The case histories which I have given do not represent isolated cases, but are more or less typical of groups of cases which comprise the criminal insane.

CONCERNING THE ACTUAL CONFLICT IN THE NEUROSES*

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In 1923 at the psychoanalytical congress in Munich, Jones in a lecture produced his arguments against Jung, considering the question of the current conflict. Since that time the problem of the current conflict has been discussed over and over again. Recently Rank has accused psychoanalysis of neglecting the current conflict in favor of the historical past of the individual. Let me review very briefly the position of the psychoanalysis in regard to this question.

Experience has taught that the inner neurotic conflicts arise when the libido is deprived of the possibility of finding in the outer world a satisfaction, compatible with the demands of the ego, or, when, on account of intolerable narcisstic mortification, sublimations have been unsuccessfully attempted. The resulting situation is one in which we speak of "outward privation" as being the cause of the illness.

The reaction of the individual to such a privation may be either normal or neurotic. In both cases the individual assumes an antagonistic attitude towards the depriving forces of real life at the moment of the privation.

We call such a situation one of current conflict, but this conflict may not be called neurotic, as long as the deprived person has the means of finding a solution adjusted to reality. He might bend the outside world to his purposes, or, where this is not possible bear the privation, that is relinquish his desires. Then he is free to look for other means of gratification. Only when neither one of these solutions can be realized, that is, when the conflict with the surrounding world appears insolvable to the sufferer, does the outer privation become an inner one. This is a vicious circle, for the very inability to solve a real conflict, having been predetermined from the very beginning by inner reasons, the outer privation did not necessarily imply a pathological effect. Not until the outer conflict is transferred to the stage of the inner world, does the inner conflict, the neurosis arise. The ego, disappointed in the outer world is compelled to look for substitutive gratification and finds it

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in the well-known path of regression. That which turns the current conflict into a neurotic one is therefore its subjective incapability of a solution. This, however, represents already a neurotic attitude to the outer world, and leads to a transformation of the momentary privation into a neurotic conflict, which, however, does not yet necessarily cause any symptoms. I do not intend to go further into the description of the various forms such conflicts may take. They may present themselves as grieving about a loss not yet overcome, or they bear the stamp of an inner uncertainty, the result of a drawn battle between the two emotional currents of an ambivalence—conflict or the fight between an impulse and an inner prohibition.

Another typical example of a neurotic struggle is the inability of separating from an object which one has ceased to love, either because one is neurotically incapable of transferring love to a new object, or because one consciously is willing to forego the new on account of a feeling of guilt towards the old. In such conflicting situations analysis always discloses that they are repetitions of an infantile pattern transposed into the present.

In many cases the neurotic tendencies find their outlet in an activity, giving rise to conflicts with the outer world. In other cases one sees that the outer precipitating occasion has assumed the role of an "agent provocateur" which gradually transforms an already existing conflicting attitude to the outer world into a neurotic illness. For the neurotic symptom takes its origin from the same deep sources whence sprang the former difficulties of adaptation to the demands of reality.

Where a real conflict cannot be solved in a normal way on account of the subjective inability to adjustment, the ego often makes violent attempts to find some compromise before pointing out deeper lying paths of regression to the libido. In such cases these attempts at a solution of the conflict bear the definite stamp of the individual character. When this solution is not achieved, then the neurotic struggles arise. Though this may seem somewhat cryptic, a case-example may help to elucidate it.

A woman patient starts analytic treatment with the statement that she is quite well and is undergoing the treatment only because her husband has urged her to do so declaring her to be "nervous."

Since treatment was initiated by the husband, I knew, however, that a momentary conflict had aroused neurotic difficulties in the wife. Analysis confirmed this fact.

After having been married to my patient for 15 years, the husband had been seized with a violent passion for a young woman who had recently become the wife of his nephew. Apparently to relieve himself of the sense of guilt and to emphasize the platonic character of this love, he had told his wife of this secret passion. The patient, trying to play the part of "comrade" to her husband, suppressed every inimically tinged reaction and was trying with every means at her command to enter into friendly relations with the new member of the family. The young wife of the nephew appeared to her as a most wonderful creature. She craved for her love. Not until her efforts to win the affection of the young woman had failed because the latter did not encourage her friendly advances, did any of the neurotic difficulties make their appearance. As the analysis progresses, it becomes clear that the patient had during all her life to contend with certain masculine tendencies in her nature which she had repressed for the sake of her husband. She was musically gifted and ambitious, but had given up her study of the art to become a good housewife, making a sacrifice, as she specially emphasized, for the husband's sake. When disappointed in her love for him and wishing to cancel this sacrifice, she went back to her musical studies, there was not, as she had expected, any protest made by the husband. Thereupon she made this devotion to musical studies impossible for herself, by creating a domestic situation in which she was forced to do the most menial work; was seized, so to speak, by a housewifely mania, and thus turned into a neurotic caricature her previous sacrifice. At the same time she carried on a continuous struggle with the servant who was not able to satisfy her in any way. So she was compelled to perform all the tasks of the household herself. In spite of the fact that she declared the girl to be good for nothing and pursued her with the most intense hatred, she was not capable of dismissing her. When the servant left the house of her own accord, the same complications ensued with the girl who replaced her.

Analysis unveiled the deeper reason why the patient had particularly chosen me for her treatment. It was the circumstance that

there existed already an unconscious relation to me in her mind, of which I was not aware. Certain circumstances had caused her to transfer to me her feelings for her rival even before the analysis had been started. She came to me to be analyzed in order to win my love as the analysis revealed. The analysis gave her an opportunity to re-experience her sadistic hatred against her rival, to recognize her conflict with the servant as a displacement and subsequently to acknowledge the neurotic bases of the conflict. Up to then (to gain this knowledge meant a year spent in the analysis) she considered the real conflict as entirely solved and utterly insignificant. She believed that she had forgiven her husband his unfaithfulness long ago.

Even in this short case history we can follow the path the conflict took in changing from an "outer" to an "inner" one.

Let us examine this case once more to get a better insight into its foundations. The patient was in a momentary real conflict. Normal reaction to it would have meant either to give up the object of love and after a period of mourning to find a new one, or to enter the competition with the rival. But the patient did not arrive at this way of adapting herself to the situation. Why? The analysis gave as an answer to this question: Because of certain persistent infantile attitudes, the emotional attachment of the patient to every love-object became stronger the more the object failed to yield to it. But also the other way out, the struggle against the rival, remained closed for our patient because her aggressive revenge tendencies always were so powerful that they were compelled to draw back, to submit to repression.

Yet there would have been one solution possible for the patient which would have left her free from illness, that is, from having a neurosis. For, the analysis proved that the patient in the course of her life had already been subjected to similar conflicts which she had tried to solve in a manner characteristic for her, that is, by making a compromise with her ego, which I mentioned at the beginning of this paper. This was by giving up the heterosexual object but pushing herself as a third person between the love of man and woman and trying to break up the bond between them by a homosexual occupation of the woman's affection. In this way, she had tried to get between her parents while she was a child, and had

concealed this action under the disguise of an exaggerated love to the mother. This early situation gave rise to her masculine tendencies which later on she renounced for her husband's sake.

When this sole feasible way of solution was made impossible for her by the unwillingness of the young rival to become her friend, the conflict brought on the neurosis. Her hatred of the rival is displaced and becomes hatred of the servant. Her aggression against the husband is turned into masochistic activity (menial housework) which she uses sadistically to burden him with a sense of guilt in accepting the sacrifices which she continuously demonstrates.

Thus we see, how the current conflict is transformed into a neurotic one, while the patient himself is unaware of the unbearableness of the real conflict. This example also serves to show you what attempts at solution the ego makes to protect itself against falling ill and how only when these fail it succumbs to the fact that no other solution is possible, and the neurosis appears.

The analytic conceptions of man's mental life have shown us that every civilized being is always in a state of latest conflict, on the one hand with the outer world, with reality, on the other hand with the dictates of his own ego. His fate is continuously to suffer privations and to overcome inhibitions. How he may adjust himself harmoniously to these inner and outer conflicts is left to his personality. In any case every individual has his characteristic, we may say his characterological way of enduring the privations of normal existence and of getting the better of them. The latent conflict does not become current until the limits of endurance which are distinctive for the particular individual, have been transgressed.

This may happen, firstly, because of the immensity of the privation; secondly, because of the weakness of the ego; thirdly, because there is a special affinity between the privation and certain tendencies which up to the present have been suppressed without difficulty. In the latter case, the precipitating occasion, plays the part of the moving spirit, the "agent provocateur." The resulting conflict, however, does not follow the pattern of a single model, on the contrary, psychoanalysis usually shows that other conflicts, similar to the current one, but in their unpathological, rudimentary shape, are traceable like a red thread, woven into the warp of the individ-

ual's life. In many cases you get the impression that the precipitating cause itself has originated in some unconscious provocation, and that the form which this provoking current privation assumes is just as characteristic of the particular individual as the special kind of the conflict, (as for instance, in the case of love conflicts). We recognize that not only the neurotic individual but also the healthy person, has the tendency to relive again and again the conflicts of his childhood which were once real. The healthy person does it in a manner compatible with the ego, adapted to reality. He founds a new family, creates social groups, "common ideals" and so forth. In a word, he creates conflicts in order to solve them. If he is neurotic he breaks down under the weight of the real conflict. His ego arrives at a state which we have designated as the "current conflict" of the neurotic. The affinity of this state to the neurotic symptom, its dependence on the same mental dynamic factors is shown also by its resemblance to one of the typical clinical pictures, expressing itself in hysterical or obsessional form, even though it may not lead to the formation of real symptoms.

As long as the conflict of an individual is altogether a real one, we are not interested in it from an analytical point of view. Our interest in it begins at the point where it has called forth neurotic reactions. That is when it has been transformed from a real into a neurotic conflict. And so the question what the analysts attitude should be towards the real conflicts of his patients answers itself: it should be the same as it is to any of the other mental manifestations of the patient. The analyst lays bare the resistances whereever they may show themselves and declines to yield to any efforts of the patient to divert his attention from what is going on in the unconscious to what is happening in reality.

If the real conflict is quite apparent and dominates the conscious mental life of the patient, he must gradually be brought to fix his attention on the analytic uncovering of the unconscious sources of the conflict. If the current conflict is repressed and its place is taken by symptoms or by a displacement (as in the above mentioned case) it is of course necessary to remove the unconscious resistances and to unmask the current conflict.

In two cases particularly the repressed current conflict must be treated with consistent effort: Firstly, when the patient himself

diligently interests himself with the infantile material and tries to draw away the analyst's attention from the present conflict; secondly, when the present conflict and the transference neurosis that is the neurotic relation of the patient to the analyst are intimately mixed up one with the other, so much so, that in this amalgamation the transference resistances and the unconscious resistances the latter originating in the current conflict join hands to contend against the analysis. Let me recall as an example the behavior of the above mentioned patient: she transferred a considerable part of the current conflict (that is the refusal of her rival's friendship) to my person, and tried to repress both, that is both the current conflict and the wooing for my affection. It would be a grievous technical mistake on the part of the analyst to underestimate the importance of the current conflict and to overvalue the infantile material in such a case.

Usually, however, the process is such, that with the appearance of the transference neurosis the whole conflict with the outer world is deprived of interest and now this interest is directed to the relation with the analyst. With the solution of the transference neurosis, also an automatic solution of the current conflict generally takes place. This even frequently occurs when nothing has been done about dealing with the current conflict. Such cases are indisputable proof that the current conflict has its source in the more profound layers of mental life.

It may also happen that the resistances of the analysis may find outward expression in such a way, that the patients seek an outlet in the outer world for emotions which have been mobilized by the analysis and have found no satisfactory outlet in the person of the analyst. The patients in such cases manifestly and actually carry out their neurotic transference wishes and create in the outer world situations which are the parallel of the present situation of the analysis. Dealing with conflicts which have become current in the outer world has the advantage of permitting a possibility of satisfaction, while the conflict with the analyst implies frustration, and thus the interest is diverted from the treatment and from recovery. For instance it frequently happens that patients enter into some love relation during analysis in order to obtain a real substitute for the infantile wish fantasies which the process of transference has

aroused in them. Such situations signify real dangers for the progress of the analysis. As a rule they usually mean the creation of real conflicts for the patient which the analytic treatment must of course not fail to deal with.

If the patient, in the course of the analysis should undergo a real and actual mortification coming from the outer world which is accompanied by strong affective reactions, the analyst must adapt his attitude to the new situation. Even though he may lose time as far as the analysis is concerned he will not fail to show the patient his kindly interest and willingness to help. And this in spite of the fact that such behavior will overthrow the analytic situation for a time.

However, when these reactions towards bereavement or sorrow assume a neurotic form, he must fix his attention on the reactions rather than on the facts which occasioned them. There is scarcely an occurrence in the life of the patient during the analysis which sooner or later will not flow into the broad stream of the transference and the mental entity of the analytic situation. It would be difficult to enumerate all the various possibilities and combinations of situations. In most cases, knowledge and tact must point out the way which the analyst had best follow, to get entrance to the inner life of the patient occupied by conflicts. Rules cannot possibly cover all the possible cases.

THE PREVENTION OF MENTAL DEFICIENCY BY SEXUAL STERILIZATION

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President Hoover at the time he was Secretary of Commerce, said when he drew up "A Child's Bill of Rights": "There should be no child in America that has not the complete birthright of a sound mind in a sound body, and that has not been born under proper conditions."

Sterilization (asexualization) of individuals possessing defective physical or mental qualities that may be transmitted to future offspring, has long been advocated. The reason for the procedure is eugenic—for the improvement of the physical and mental attributes of the race. Sterilization has been advocated as a deterrent for criminality, and to decrease insanity and feeblemindedness, and is used in cases where it would be fatal to a woman to become pregnant.

It is the purpose of this paper to point out the very definite need for the use of sterilization in the management of mental defectives —in New York as well as other states. It is felt that there is not sufficient evidence to warrant its use in the treatment of the insane (using the term in its broadest sense), though we may have to revise our views in this regard as time goes on—to the extent of advocating the measure for hopelessly deteriorated insane persons before they are released from institutions. The question of sterilizing criminals as a class (other than definite mental defectives) can be dismissed with the comment that there is general agreement in well informed circles that the measure is not indicated for criminals.

When we take up the consideration of mental deficiency (or feeblemindedness) we find an interesting set of facts confronting us. It is the general consensus of opinion among most scientists (including psychologists, psychiatrists, eugenists and those in other fields) that mental deficiency is due in at least 50 per cent of the cases to hereditary taint in the ancestry. There are, of course, cases caused by birth injury, hydrocephalus, mongolism or some specific disease such as encephalitis or anterior poliomyelitis (encephalopoliomyelitis), syphilis, etc.

To some extent, at least, feebleminded persons seek out and marry (or cohabit with) other feebleminded persons. In the pres-

ent study will be found a number of cases of large families, a considerable proportion of whose members are mentally defective. It is my belief that mental deficiency will continue to increase unless steps are taken to control the propagation of such inferior stock, thus carrying out the general theory of preventive medicine by removing the cause of this blight on society.

Every state has more mental defectives needing institutionalization than it has beds for the care of these defectives in the institutions. New York State is just finishing the construction of a new institution to house 3,000 mental defectives, yet this will not adequately meet the needs of the State. At the present time there are over 6,500 mental defectives receiving constant care in the New York State schools and an additional 1,000 on parole, but one at once sees that, despite this program of building new institutions, the facilities for caring properly for the mental defectives are far from sufficient, for it has been estimated that there are at least 100,000 mental defectives in New York State. Some estimate there are nearer 200,000. However, advances have been made in segregating suitable cases, for there are now nearly twice as many mental defectives in institutions in New York as there were ten years ago. In Massachusetts, where there are already over 4,000 mental defectives in institutions, it is said there are between 60,000 and 80,000 outside of institutions. This indicates the size of the problem we are facing.

Up to the present the blind following of the theory of quantity production of human lives has been the rule, but if the race is to improve and civilization to progress, the theory of quality production must be gradually but definitely introduced.

The general theory and plan of meeting the problem has been through the State maintenance of institutions for segregating the mentally deficient. However, the available institutions are nowhere in sufficient number to meet the problem. As a result mental defectives remain in the community who should be under custodial care; and there is little that deters these persons from adding more mentally defective progeny, often via the illegitimate route.

Twenty states have on their statute books at the present time, laws permitting eugenical sterilization. Due to the fact that the state institutions in California have taken an active hand in car-

rying out the provisions of the 1909 act permitting sterilization, the great majority of sterilizations have been done in this single state.

The constitutionality of a sterilization law has already been settled by the United States Supreme Court in its significant decision in 1927. Virginia's sterilization law was then declared constitutional. The reading of the entire wording of this decision is impressive—but only the following needs to be quoted: ". . . It is better for all the world if instead of waiting to execute degenerate offspring for crime, or to let them starve for their imbecility, society can prevent those who are manifestly unfit from continuing their kind. The principle that sustains compulsory vaccination is broad enough to cover cutting the Fallopian tubes . . . Three generations of imbeciles are enough."

In passing, it may be noted that the need for preventing the procreation of mental defectives is being seen in other countries. Recently one of the cantons of Switzerland passed a law for the sterilization of the unfit. Also, in Canada, in the Province of Alberta, a sexual sterilization act has been passed (with Royal assent) which permits the sterilization of persons who could be discharged from mental hospitals if the danger of procreation was eliminated.

Case Studies

The records of cases seen in the child guidance clinics conducted by the New York State Department of Mental Hygiene (Division of Prevention) furnish evidence of the need for the sterilization of those unfit to sire future generations.

Let us consider the case of a boy of 13½ years, who is not at present benefiting by school instruction. He has remained in the first grade ever since entering school at the age of 7 years. The psychological examination reveals that he has an I. Q. of only 54 (low grade moron). He appears even more defective than the I. Q. of 54 would seem to indicate. The history points to the mother being definitely defective mentally, as she had only a short period in school, and eventually ran away with a negro, with whom she is now living. The father had no schooling. The family is one known for generations to consist almost entirely of mental defectives. It is evident from a consideration of the scholastic records of the other five living children (a sixth died in infancy, of "fits") that these

defective parents have transmitted a very inferior mental equipment to all of their children. Three of the five only reached third grade in school and two reached only fourth grade. One of these last two appears to be a definite, low grade mental defective.

Would it not have been better if these two parents had not added this considerable number of individuals of low grade intelligence to the social melee? Sterilization of the mother would have prevented it. In any case it certainly seems more than reasonable that this boy be prevented (through sterilization) from transmitting his faulty germ plasm to future generations of mental defectives. Likewise, others of these siblings who show definite mental deficiency through proper tests, should be sterilized.

A consideration of the record of the next family will at once show the inadequate way in which social problems of this kind have been dealt with heretofore. The mother and two children were brought to the clinic for social recommendations, because of inadequate supervision over the children, inability to maintain a home, etc. They have depended on community support for ten years—and the children have even been sent to beg from various charitable organizations. The father, age 46, will not work, in spite of frequent arrests for non-support with jail sentences. He is known to be sexually promiscuous, and is said to be responsible for the paternity of a number of illegitimate children, besides the six living children in his own family. He is alcoholic. When examined psychologically he was found to be a low grade moron, having an I. Q. of 57. His own hereditary background is of interest. His father was a loafer, "weakminded" and alcoholic. His mother was also "weakminded" and considered wicked for allowing her 18-year-old daughter and 20-year-old son to sleep together, resulting in their procreating an incestuously illegitimate child.

The mother, age 41, had an illegitimate child at the age of 20 and a second illegitimate child at the age of 22 and because of promiscuity did not know the paternity. Her own father had little education and was alcoholic. Her mother had "a fair education." There were 12 other siblings in her family, one sister having an illegitimate child before she was married at 21. In the psychological examination the mother attained an I. Q. of 56, placing her in the low grade moron group. It would appear that sterilization of this

woman before she began to procreate would have been a boon to the community, both socially and economically.

Two of the children were brought to the clinic as "neglected children." The older one, a girl of 10, had been subjected to rape at the age of 8½ by a man of 52, contracting gonorrhoea as a result. Although this may seem shocking at first, it is no more than might have been anticipated, considering the fact that her mentally defective parents often carried out sexual relations in her presence, and that she was but a mid-grade moron mental defective. Her I. Q. was 63. Should this child be allowed to perpetuate the type of record her ancestors have made or should sterilization be used as a means of checking the growth of this family tree?

The other child, an 8-year-old girl, is still in the first grade. Time will tell whether her intelligence level will improve slightly, or gradually decrease; the latter is the more likely considering all the factors in her social background. She now has an I. Q. of only 73, and is therefore classifiable as a borderline defective.

Of the other four children, one lives with an aunt in a nearby city; a boy aged 13, now only in fifth grade; a girl of five living with an uncle in a more remote city is in kindergarten; a boy of three has been placed in an orphanage. He is also mentally retarded. The fourth died at the age of 6, of cholera infantum. Information about the mother's two illegitimate children is not available.

It is quite within the realm of expectancy that of this group of children, having such a faulty environment (mental defective parents), and being of poor mental caliber themselves, a considerable proportion will make poor social and economic adjustments in life, and some will eventually have to be institutionalized.

A seven-year-old girl was brought to the clinic because of inability to do her school work. Family history showed that the father had only a few years' schooling and the mother is considered a mental defective. The girl herself runs true to form among the group of 9 siblings, as they were all retarded in school and irresponsible. She is definitely defective mentally, attaining an I. Q. of only 55. Her speech is so undeveloped that it is most difficult to understand what she says. As she grows older and attains puberty, she will undoubtedly become a very serious social problem if she remains in the community. Therefore she will probably have

to be confined in an institution for the feebleminded. Yet it is quite possible she might become self-supporting as an adult, in some simple type of occupation, especially if she did not have to think of the possibility of rearing children. Her progeny would be for the most part mental defectives. Would it not be proper to have her sterilized at the time of puberty and give her an opportunity to make a living, provided, of course, that she shows sufficient ability to do so when she reaches that age.

M. is a girl of six years. She was examined at the clinic by the psychologist, but, due to her inability to cooperate, an accurate determination of her I. Q. was impossible. She gave the all around impression of being a low grade moron—her speech was very defective. The history shows she was born in a State school, the illegitimate child of a woman, a low grade mental defective who had spent many years of her life in a State school. The pregnancy occurred while the woman was on parole from the institution, she claiming she did not know the man who was the father. She was known to be promiscuous sexually, pregnancy having been suspected when she was originally committed to the State school 11 years ago. A sister of the mother was also mentally defective and an inmate of the same State school. The mother's parents (now dead) were described as both being mental defectives.

With no knowledge of the paternal heritage, we have here a definite picture of the effects of faulty heredity, through three generations, all those known being mental defectives. Sterilization two generations back would have prevented the addition of both this child and her mother to the social group as total liabilities.

Another family illustrates quite graphically the need for a radical change in our methods of dealing with mental defectives. The parents, with three children, were brought to the clinic for recommendations as to proper disposition of the entire group.

The father, age 29, is unable to support the family at all properly. He is credited with and admits general sexual promiscuity, and is said to be responsible for the paternity of several illegitimate children by other women and girls, in addition to his own three legitimate children. Psychological examination showed him to be a low grade moron (I. Q., 51). The mother, age 29, deserted her family because of fear of additional pregnancies. She has

three children, ages 6, 4 and 2 years, and has had a number of miscarriages (3 or more) self-induced. She is very evidently an incompetent person to bring up her children. She had recently been subject to "fainting spells" (epilepsy?). Psychological examination shows her to be a low grade moron (I. Q., 52).

The three children of this union are all of low grade. The oldest, a boy aged 6, has an I. Q. of only 51, low grade moron level. The next, a boy of 4, has an I. Q. of only 52, also low grade moron. The youngest is a boy of 2 and it is not improbable that as he grows older and his intelligence can be accurately measured, he will show up as inferior as his brothers. All the children show marked retardation in speech development. The proper treatment of the boys of this family would be sterilization before puberty.

There are, of course, many types of sterilization operations advocated by authorities. This subject has been completely dealt with by Dr. R. L. Dickinson in his recent article entitled, "Sterilization without Unsexing." For the male, the best procedure available at present is vasectomy under local anesthesia. This type of operation entails the shortest period of enforced disability, while being the most positive assurance of preventing a return to fertility, and carried with it no operative risk.

In the case of the female, the operative procedure is not quite so simple. The method that has the greatest assurance of producing permanent sterility is salpingectomy (excision of a short section of the Fallopian tubes) which entails laparotomy. Since opening the abdominal cavity always carries some risk, a method that will eliminate this procedure has been needed. Apparently, this objectionable feature to female sterilization has been removed through the very unique operative procedure devised by Dr. Dickinson. His method consists of intra-uterine electric cauterization at the point of entry of the Fallopian tube into the uterus. The procedure is carried out by means of a specially designed hysteroscope which can be so inserted as to reach the point where cauterization is to be done; then the electric current is turned on for the required period of time. After this a slough forms, which is followed by a stricture, thus sealing off the uterus from the abdominal cavity, and producing artificial sterility.

Conclusions

1. Sterilization is a rational method of treating selected mental defectives.

2. This method holds out many possibilities for attacking the problem of mental deficiency in a quantitatively constructive manner.

3. Through the decrease in the number of mental defectives, a concomitant reduction in the amount of poverty, State dependency, prostitution, venereal disease and delinquency may be expected.

4. For the same reason, a definite reduction in the constantly increasing expense of State care for mental defectives could be expected, the saving gradually increasing from year to year as the whole number of defectives gradually diminish.

5. States that do not have sterilization laws should pass legislation permitting the sterilization of mental defectives in State institutions.

6. Provision should also be made in these laws for permitting sterilization operations, where indicated, to be performed at State expense on mental defectives not in institutions.

7. The best operations available at the present time, seem to be: (a) for males, excision of a portion, or tying off of the vas deferens (vasectomy); (b) for females, cauterization with subsequent cicatrization of the lumenae of the Fallopian tubes (at the uterine cornuae) through hysteroscope (Dickinson), or tying off or excision of the Fallopian tubes (salpingectomy) which requires laparotomy.

OCCUPATIONAL THERAPY IN THE NEW YORK CIVIL STATE HOSPITALS IN THE YEAR ENDED JUNE 30, 1929

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The idea of the State hospital as a purely custodial institution has almost entirely disappeared. It is now considered to have the attributes and the purpose of any other type of hospital, namely, the treatment and cure of disease. To achieve such a modern position it was necessary to pass from the mediaeval conception to the scientific view which postulates the natural origin of mental disease, and its treatment by natural methods. In our own day we have witnessed one of the triumphs of medical science in the successful treatment of general paralysis. The purely medical treatment of mental disease has a handmaid in occupational therapy. This systematic attempt to apply the psychological and pedagogical principles of purposeful activity to the treatment of mental disorders, when directed under proper psychiatric guidance to the needs of the individual patient, has demonstrated a high order of value.

Occupational therapy has occupied a prominent part in the New York civil State hospitals since 1922. From small beginnings it has grown to a departmental activity which ministers to thousands of patients.

When the occupational therapy departments were organized the need for proper statistical recording was wisely foreseen. The result is that it has been possible to study the growth of the department and to make interhospital comparisons of the results of such treatment. An earlier review[1] carried the subject through the years 1923-1928 inclusive. The present study carries the analysis through the fiscal year ended June 30, 1929.

The following table summarizes the activities of the occupational therapy departments in the several State hospitals during the year ended June 30, 1929.

1. See "A Statistical Review of Occupational Therapy in the New York Civil State Hospitals" in PSYCHIATRIC QUARTERLY, July 1, 1929, pages 413-425.

TABLE 1. MOVEMENT OF OCCUPATIONAL THERAPY PATIENTS IN THE NEW YORK CIVIL STATE HOSPITALS DURING THE YEAR ENDED JUNE 30, 1929

HOSPITALS	Under treatment July 1, 1928			Admitted to treatment during year			Total under treatment during year			Left treatment			Under treatment June 30, 1929			Receiving physical training only June 30, 1929		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Binghamton	705	840	1,545	323	463	786	1,028	1,303	2,331	358	438	796	670	865	1,535	454	609	1,063
Brooklyn	127	218	345	506	807	1,313	633	1,025	1,658	522	837	1,359	111	188	299	10	13	23
Buffalo	199	711	910	422	515	937	621	1,226	1,847	418	501	919	203	725	928	93	154	247
Central Islip	741	740	1,481	786	1,302	2,088	1,527	2,042	3,569	794	1,170	1,964	733	872	1,605	496	510	1,006
Creedmoor	322	326	648	490	1,170	1,660	812	1,496	2,308	375	900	1,275	437	596	1,033	313	315	628
Gowanda	235	95	330	272	140	412	507	235	742	280	156	436	227	79	306	144	12	156
Harlem Valley	138	203	341	56	175	231	194	378	572	38	158	196	156	220	376	...	...	...
Hudson River	524	1,002	1,526	859	610	1,469	1,383	1,612	2,995	660	601	1,261	723	1,011	1,734	333	366	699
Kings Park	1,098	713	1,811	667	394	1,061	1,765	1,107	2,872	966	604	1,570	799	503	1,302	220	200	420
Manhattan	528	695	1,223	630	1,042	1,672	1,158	1,737	2,895	774	1,036	1,810	384	701	1,085	108	139	247
Marcy	95	177	272	7	166	173	102	343	445	15	265	280	87	78	165	70	61	131
Middletown	273	614	887	66	141	207	339	755	1,094	97	275	372	242	480	722	147	140	287
Rochester	166	351	517	116	317	433	282	668	950	48	216	264	234	452	686	223	227	450
St. Lawrence	9	94	103	45	118	163	54	212	266	42	59	101	12	153	165	...	...	...
Utica	315	363	678	314	300	614	629	663	1,292	323	267	590	306	396	702	232	300	532
Willard	198	230	428	277	364	641	475	594	1,069	266	414	680	209	180	389	209	80	289
Total	5,673	7,372	13,045	5,836	8,024	13,860	11,509	15,396	26,905	5,976	7,897	13,873	5,533	7,499	13,032	3,052	3,126	6,178

For the entire system there was a decline in the number of patients from 13,045 on July 1, 1928, to 13,032 on June 30, 1929. The males were reduced in number from 5,673 to 5,533, but the females increased from 7,372 to 7,499. The admissions to occupational therapy totaled 13,860, of whom 5,836 were males and 8,024, females. The departures numbered 13,873, of whom 5,976 were males and 7,897, females. The following hospitals showed decreases in the number of patients at the close of the year: Binghamton, Brooklyn, Gowanda, Kings Park, Manhattan, Marcy, Middletown and Willard. Increases occurred at Buffalo, Central Islip, Creedmoor, Harlem Valley, Hudson River, Rochester, St. Lawrence and Utica. The largest increases occurred at Creedmoor and Hudson River.

These statistics include patients receiving physical training only. Of the latter group there were 6,178 on June 30, 1929, of whom 3,052 were males and 3,126, females. On June 30, 1928, there were 5,966 patients receiving physical training only, of whom 3,252 were males and 2,714, females. The growth in this activity was due to an increase among females.

The following table traces the growth in occupational therapy as shown by the totals of patients at the close of the year.

TABLE 2. PATIENTS IN THE OCCUPATIONAL THERAPY DEPARTMENTS OF THE NEW YORK CIVIL STATE HOSPITALS AT THE CLOSE OF THE FISCAL YEARS, 1923-1929, INCLUSIVE

	Number in occupational therapy departments			Number in occupational therapy departments per 100 patients in the State hospitals		
	Males	Females	Total	Males	Females	Total
June 30, 1923	*	*	5,340	*	*	16.2
June 30, 1924	*	*	7,339	*	*	18.8
June 30, 1925	*	*	9,849	*	*	24.4
June 30, 1926	5,146	6,923	12,069	26.4	31.7	29.2
June 30, 1927	5,134	7,839	12,973	25.3	34.8	30.3
June 30, 1928	5,673	7,372	13,045	26.9	31.5	29.3
June 30, 1929	5,533	7,499	13,032	25.8	31.4	28.8

*Data not available.

From a total of 5,340 patients in the occupational therapy departments on June 30, 1923, there was a steady increase to a maximum of 13,045 on June 30, 1928. The slight falling off in the following year leaves the number well above the totals of the earlier years. The totals do not show any definite trends in the sexes. As was indicated above, the decrease in 1929 was due to a decline of 140 in the number of males, the females on the other hand, increasing by 127. As in previous years the females exceeded the males.

Table 2 also shows the ratio of patients in the occupational therapy departments per 100 patients in the entire hospital system. Beginning with a ratio of 16.2 per 100 on June 30, 1923, there was a rapid increase to 30.3 on June 30, 1927. There has since been a relative decrease. In 1928, there were 29.3 patients in the occupational therapy departments to every 100 in the State hospitals; this ratio declined still further to 28.8 per 100 on June 30, 1929. Statistics by sex have been recorded since 1926. The males reached a maximum ratio of 26.9 in 1928, the females had a maximum of 34.8 in 1927. The male rates have fluctuated irregularly, whereas the females have shown a decided reduction since 1927. As in the case of the absolute numbers, the female rates are higher than those of the males.

The statistics given above include patients who were in receipt of physical training only. These have been reported separately since 1927. The following table relates to patients in the occupational therapy departments at the close of the fiscal years, exclusive of the former group.

TABLE 3. PATIENTS IN THE OCCUPATIONAL THERAPY DEPARTMENTS OF THE NEW YORK CIVIL STATE HOSPITALS (EXCLUSIVE OF THOSE IN RECEIPT OF PHYSICAL TRAINING ONLY)

Date	Number			Number per 100 patients in the State hospitals		
	Males	Females	Total	Males	Females	Total
June 30, 1927	2,098	4,714	6,812	10.3	21.0	15.9
June 30, 1928	2,421	4,658	7,079	11.5	19.9	15.9
June 30, 1929	2,481	4,373	6,854	11.6	18.3	15.1

The males have increased numerically from year to year, whereas the females have decreased since 1927. This is also true on a relative basis, since the male rate has increased from 10.3 per 100 patients to 11.6, whereas the females have decreased from 21.0 to 18.3. Again, however, the females exceed the males, both in absolute and relative figures.

A still better picture of the annual movement of patients in the occupational therapy departments is afforded by the total under care during the year. This is shown in the following table:

TABLE 4. PATIENTS TREATED IN THE OCCUPATIONAL THERAPY DEPARTMENTS OF THE NEW YORK CIVIL STATE HOSPITALS DURING THE FISCAL YEARS, 1926-1929

Year	Number			Number per 100 patients under care in the State hospitals		
	Males	Females	Total	Males	Females	Total
1926	2,817	5,867	8,684	11.1	21.2	16.4
1927	3,239	6,723	9,962	12.3	23.9	18.3
1928	3,814	7,210	11,024	13.7	24.6	19.3
1929	4,504	7,587	12,091	15.6	25.0	20.4

The results are quite different from those shown in the preceding tables. The males have increased regularly from a total of 2,817 to 4,504, the females from 5,867 to 7,587. The total has thus grown in four years from 8,684 patients to the impressive total of 12,091. Relative to all patients in the State hospitals there has been a similar increase. In 1926 the ratio was 16.4 per 100; in 1929 it had reached 20.4. The males increased from 11.1 per 100 to 15.6; the females from 21.2 to 25.0. These measures are more adequate than totals of those present on a specific date, and indicate that the use of occupational therapy is becoming more general from year to year.

Table 5 gives detailed data with respect to each State hospital for the year ended June 30, 1929.

This table shows not only the numbers treated in the occupational therapy departments of each hospital but the ratio of these to the total number of patients in the hospital in the course of the year. The average rate for all hospitals was 20.4 per 100. The

maximum rate was 38.8 per 100 patients at Marcy, the minimum, 2.9 per 100 at Middletown. Other hospitals with rates above the average were: Brooklyn, Creedmoor, Harlem Valley, Kings Park. Hospitals with rates below the average included: Central Islip, Hudson River, Manhattan, Rochester, St. Lawrence, Utica and Willard. The females had higher rates than males, as in previous years, the only exception occurring at Utica, where 25.6 per cent of the males and only 11.2 per cent of the females were under treatment.

TABLE 5. PATIENTS TREATED IN OCCUPATIONAL THERAPY DEPARTMENTS OF THE NEW YORK CIVIL STATE HOSPITALS DURING THE FISCAL YEAR ENDED JUNE 30, 1929

State hospitals	Number			Rate per 100 patients in the State hospitals		
	Males	Females	Total	Males	Females	Total
Binghamton	302	407	709	15.7	26.8	20.6
Brooklyn	561	787	1,348	36.3	37.5	37.0
Buffalo	160	492	652	10.6	29.7	20.6
Central Islip	635	1,043	1,678	13.2	25.0	18.6
Creedmoor	209	480	689	21.5	39.2	31.4
Gowanda	175	174	349	17.3	23.4	19.9
Harlem Valley	156	225	381	17.9	25.7	21.8
Hudson River	271	467	738	11.4	16.6	14.2
Kings Park	989	1,191	2,180	28.3	34.0	31.2
Manhattan	601	1,023	1,624	13.5	19.6	16.8
Marcy	62	345	407	13.3	59.0	38.8
Middletown	21	79	100	1.3	4.3	2.9
Rochester	13	240	253	1.2	17.6	10.3
St. Lawrence	34	187	221	2.5	12.4	7.8
Utica	315	144	459	25.6	11.2	18.3
Willard	...	303	303	...	18.6	9.5
Total	4,504	7,587	12,091	15.6	25.0	20.4

In the entire hospital system 25.0 per cent of the females received occupational therapy, contrasted with 15.6 per cent of the males. The former varied from a minimum of 4.3 at Middletown to a maximum of 59.0 at Marcy, the males fluctuated between a minimum of 1.2 at Rochester and a maximum of 36.3 at Brooklyn. (No males received occupational therapy at Willard.)

As in previous years there was great variation in the degrees to which the several hospitals utilize occupational therapy, the variation among males exceeding that among females. There was, how-

ever, less variation in 1929 than in 1928. In this respect the sexes showed contrary tendencies, the males being slightly more variable in 1929 but the females much less variable.

The following hospitals showed appreciable increases in percentages of patients receiving occupational therapy in 1929, as compared with 1928. Brooklyn increased from 30.9 to 37.0; Creedmoor from 25.5 to 31.4; Manhattan from 14.2 to 16.8. Among the hospitals which showed a decrease from 1928 to 1929 were: Binghamton, with 21.2 and 20.6 respectively; Gowanda with 21.6 and 19.9; Harlem Valley which declined from 41.0 to 21.8; Marcy with 48.4 and 38.8 and St. Lawrence with 11.3 and 7.8. The sexes showed contrary trends in the following hospitals: At Buffalo, the males increased from 9.7 to 10.6 whereas the females decreased from 30.8 to 29.7. At Kings Park the males increased from 27.1 to 28.3; the females decreased from 35.7 to 34.0. At Rochester the males decreased from 1.5 to 1.2 whereas the females increased from 17.5 to 17.6. At Utica the males increased from 19.9 to 25.6, the females decreased from 15.3 to 11.2.

The patients admitted to the occupational therapy departments are classified by psychoses in the following table:

As in previous years dementia præcox constituted the largest single group of patients in the occupational therapy departments. Of the 12,091 patients thus treated, 6,571, or 54.3 per cent, were in this group. The manic-depressives constituted 2,035, or 16.8 per cent of the total. To see the correct proportions, however, we must consider the percentages under care in the several groups of psychoses.

As already indicated the rate of patients receiving occupational therapy in the entire hospital system was 20.4 per cent. The minimum rate of 6.7 per cent occurred in psychoses with brain tumor, the maximum, 32.0, in the psychoneuroses and neuroses. The following psychoses had rates above the average: Psychoses with other brain or nervous diseases, psychoses due to drugs, etc., manic-depressive, involution melancholia, dementia præcox, psychoneuroses and neuroses, and psychoses with psychopathic personality. Psychoses with low rates were: traumatic, senile, psychosis with cerebral arteriosclerosis, general paralysis, psychoses with cerebral syphilis, psychoses with brain tumor, alcoholic psychoses, psychoses with other somatic diseases and epileptic psychoses.

TABLE 6. DIAGNOSES OF ADMISSIONS TO OCCUPATIONAL THERAPY DEPARTMENTS OF THE NEW YORK CIVIL STATE HOSPITALS DURING THE FISCAL YEAR ENDED JUNE 30, 1929

Psychoses	Number			Rate per 100 patients in the State hospitals		
	Males	Females	Total	Males	Females	Total
Traumatic	39	6	45	18.4	14.0	17.6
Senile	57	222	279	6.3	14.7	11.5
With cerebral arteriosclerosis	160	188	348	10.3	14.9	12.3
General paralysis	306	137	443	13.9	19.8	15.3
With cerebral syphilis	19	37	56	9.9	28.0	17.3
With Huntington's chorea	5	2	7	13.9	8.7	11.9
With brain tumor	1	1	2	5.9	7.7	6.7
With other brain or nervous diseases	91	75	166	29.5	33.8	31.3
Alcoholic	208	89	297	11.0	16.6	12.2
Due to drugs and other exogenous toxins	5	15	20	12.5	31.9	23.0
With other somatic diseases	18	58	76	10.5	20.1	16.5
Manic-depressive	452	1,583	2,035	18.9	33.8	28.8
Involution melancholia	50	288	338	12.6	29.5	24.6
Dementia præcox	2,569	4,002	6,571	17.4	25.1	21.4
Paranoia or paranoic conditions	50	153	203	9.0	16.7	13.8
Epileptic psychoses	115	132	247	16.3	20.5	18.3
Psychoneuroses and neuroses	63	102	165	29.3	34.0	32.0
With psychopathic personality	93	136	229	20.4	27.1	23.9
With mental deficiency	138	273	411	14.4	25.8	20.4
Undiagnosed psychoses	53	77	130	9.4	16.1	12.5
Without psychosis	12	11	23	15.4	23.9	18.5
Total	4,504	7,587	12,091	15.6	25.0	20.4

There were some sex differences, however. The females have higher rates under treatment than the males in every psychosis except traumatic, where the rates are 18.4 and 14.0 per cent for males and females, respectively, and in psychoses with Huntington's chorea, with 13.9 and 8.7 per cent, respectively. Some of the converse differences are noteworthy. Thus 14.7 per cent of the female seniles received occupational therapy, compared with only 6.3 per cent of the males. In psychoses with cerebral syphilis the rates were 28.0 and 9.9 per cent, respectively; in psychoses with other somatic diseases, 20.1 and 10.5; in manic-depressive psychoses, 33.8 and 18.9; in involution melancholia, 29.5 and 12.6; in dementia præcox, 25.1 and 17.4, and in paranoia, 16.7 and 9.0.

Most of the groups of psychoses showed increases in the per-

centages of patients under occupational treatment in 1929 compared with 1928. Several, however, showed a decrease. These were psychoses with brain tumor, in which the percentage decreased from 7.3 to 6.7; psychoses with other brain or nervous diseases with percentages of 34.3 and 31.3, respectively; involution melancholia with 26.0 and 24.6; psychoneuroses and neuroses with 34.0 and 32.0; and the undiagnosed group which showed a sharp decline from 18.7 to 12.5. In the following psychoses the males showed increased percentages receiving occupational therapy in 1929, whereas the percentages for the females declined; traumatic, general paralysis, psychoses with brain tumor, psychoses with other brain or nervous diseases, alcoholic psychoses, psychoneuroses and neuroses, and psychoses with psychopathic personality.

The variation in the percentages under treatment in the several groups of psychoses as above indicated was high though less than that in the separate hospitals. The variation was greater among males than among females, and was less in 1929 than in 1928. Thus in the important matter of percentage of patients receiving occupational therapy, not only is there an increase from year to year but greater uniformity is being attained both by the several hospitals and in the several groups of psychoses.

Let us now consider the important question of the outcome of occupational therapy. The results for 1929 are shown in the following table and compared with those for the three preceding years:

TABLE 7. REPORTED CONDITION OF PATIENTS AFTER TREATMENT IN OCCUPATIONAL THERAPY DEPARTMENTS OF THE NEW YORK CIVIL STATE HOSPITALS, PER 100 UNDER TREATMENT, DURING FISCAL YEAR ENDED JUNE 30, 1926, 1927, 1928 AND 1929

Year	Of every 100 under treatment														
	Recovered			Improved			Unimproved			Died			Unreported		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
1926	2.2	1.9	2.0	45.3	48.7	47.5	49.7	45.6	46.9	1.4	1.6	1.6	1.4	2.2	2.0
1927	1.9	2.3	2.2	46.8	50.0	49.0	49.2	44.6	46.1	0.9	1.1	1.0	1.2	2.0	1.7
1928	2.6	2.4	2.4	47.5	45.6	46.3	47.8	49.7	49.0	1.0	1.6	1.4	1.1	0.7	0.9
1929	2.2	2.2	2.2	49.9	47.1	48.2	45.1	48.7	47.3	1.7	1.6	1.6	1.1	0.4	0.7

Of the 12,091 patients treated during 1929, 264, or 2.2 per cent, were reported as recovered; 5,822, or 48.2 per cent, as improved; 5,725, or 47.3 per cent, as unimproved; 200, or 1.6 per cent, as having

died, and 80, or 0.7 per cent, as not classified by condition. Slightly over half were thus benefited by treatment. Similar percentages were reported in the preceding year. In 1926 and in 1927, the combined percentage of those recovered and improved was greater among females than among males; in the subsequent two years, the males had the higher percentage.

Table 8 shows the reported condition of the patients in each of the several hospitals. The totals are reduced to a percentage basis in Table 9.

The distinction between recovery and improved often depends upon the judgment of the individual observer, and fluctuations may result solely from this cause. It may be better, therefore, to combine the two classes into a single group, namely, patients showing some degree of improvement. In the subsequent analysis the term improvement will therefore refer to the combination of these two classes. The maximum rate of improvement was 81.0 per cent, reported by Middletown, the minimum, 27.5 per cent, reported by Hudson River. The former hospital, however, had a total of only 100 patients in occupational therapy, and it is probable that selection of patients was made. The next highest rate, 69.7 occurred at St. Lawrence. Other hospitals with rates above the average were: Brooklyn, Buffalo, Central Islip, Harlem Valley, Utica and Willard. Hospitals below the average were Binghamton, Creedmoor, Gowanda, Kings Park, Manhattan, Marcy and Rochester.

Among males, the average rate of improvement was 52.1 per cent, with a maximum of 77.7 at Central Islip and a minimum of 30.2 at Creedmoor. In the following hospitals the males had rates of improvement above the average; Binghamton, Brooklyn, Buffalo, Harlem Valley and Utica. Hospitals below the average were Gowanda, Hudson River, Kings Park and Manhattan.

Among females the average rate of improvement was 49.3 per cent with a maximum of 72.2 at St. Lawrence, and a minimum of 19.7 at Hudson River. Other hospitals with rates above the average for females were Brooklyn, Buffalo, Central Islip, Harlem Valley, Marcy, Utica and Willard. Other hospitals below the average were Binghamton, Creedmoor, Gowanda, Kings Park, Manhattan and Rochester. In the preceding comparisons by sex no rates were computed for hospitals with patients numbering less than 100 in the occupational therapy departments.

TABLE 8. REPORTED CONDITION* OF PATIENTS TREATED IN OCCUPATIONAL THERAPY DEPARTMENTS OF THE NEW YORK CIVIL STATE HOSPITALS DURING THE YEAR ENDED JUNE 30, 1929

State hospitals	Total			Recovered			Improved			Unimproved			Died			Unreported		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Binghamton	302	407	709	8	10	18	152	105	257	135	284	419	7	3	10	..	5	5
Brooklyn	561	787	1,348	11	6	17	301	421	722	226	333	559	23	27	50	..	..	..
Buffalo	160	492	652	1	2	3	94	316	410	59	163	222	1	11	12	5	..	5
Central Islip	635	1,043	1,678	15	17	32	478	630	1,108	138	395	533	4	1	5	..	..	..
Creedmoor	209	480	689	1	7	8	62	212	274	142	255	397	4	6	10	..	..	..
Gowanda	175	174	349	11	18	29	62	58	120	102	98	200	..	..	..	..	..	..
Harlem Valley	156	225	381	..	..	..	84	134	218	72	91	163	..	..	..	..	..	..
Hudson River	271	467	738	..	1	1	111	91	202	152	360	512	6	15	21	2	..	2
Kings Park	989	1,191	2,180	..	31	31	479	524	1,003	492	614	1,106	13	20	33	5	2	7
Manhattan	601	1,023	1,624	15	66	81	217	354	571	347	588	935	1	11	12	21	4	25
Marcy	62	345	407	..	..	..	11	189	200	51	144	195	..	10	10	..	2	2
Middletown	21	79	100	..	2	2	11	68	79	1	2	3	..	2	2	9	5	14
Rochester	13	240	253	..	..	..	7	83	90	6	156	162	..	1	1	..	..	..
St. Lawrence	34	187	221	..	..	..	19	135	154	5	33	38	1	9	10	9	10	19
Utica	315	144	459	37	5	42	158	85	243	102	52	154	17	2	19	1	..	1
Willard	...	303	303	..	..	..	..	171	171	..	127	127	..	5	5	..	..	..
Total	4,504	7,587	12,091	99	165	264	2,246	3,576	5,822	2,030	3,695	5,725	77	123	200	52	28	80

* At end of year or at time of discontinuance of treatment.

TABLE 9. PER CENT DISTRIBUTION OF REPORTED CONDITION OF PATIENTS TREATED IN OCCUPATIONAL THERAPY DEPARTMENTS OF THE NEW YORK CIVIL STATE HOSPITALS DURING THE YEAR ENDED JUNE 30, 1929

State hospitals	Total number			Recovered			Improved			Unimproved			Died			Unreported		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Binghamton	302	407	709	..	..	..	..	56.4	56.4	..	69.8	59.1	2.3	0.7	1.4	..	1.2	0.7
Brooklyn	561	787	1,348	2.7	2.5	2.5	50.3	25.8	36.3	44.7	42.3	41.4	4.1	3.4	3.7	..	..	..
Buffalo	160	492	652	2.0	0.8	1.3	53.6	53.5	53.6	40.3	33.2	34.0	0.6	2.2	1.8	3.1	..	0.8
Central Islip	635	1,043	1,678	0.6	0.4	0.5	58.8	64.2	62.9	36.9	37.9	31.8	0.6	0.1	0.3	..	..	..
Creedmoor	209	480	689	2.4	1.6	1.9	75.3	60.4	66.0	21.7	53.1	57.6	1.9	1.3	1.4	..	..	..
Gowanda	175	174	349	0.5	1.4	1.2	29.7	44.2	39.8	67.9	56.3	57.3	..	..	..	..	..	..
Harlem Valley	156	225	381	6.3	10.3	8.3	35.4	33.4	34.4	58.3	40.4	42.8	..	..	..	..	..	..
Hudson River	271	467	738	..	..	..	53.8	59.6	57.2	46.2	77.1	69.4	2.2	3.2	2.8	0.7	..	0.3
Kings Park	989	1,191	2,180	..	0.2	0.1	41.0	19.5	27.4	56.1	51.5	50.8	1.3	1.7	1.5	0.5	0.2	0.3
Manhattan	601	1,023	1,624	..	2.6	1.4	48.4	44.0	46.0	49.8	57.5	57.6	0.2	1.1	0.7	3.5	0.4	1.5
Marcy	62	345	407	2.5	6.4	5.0	36.1	34.6	35.2	57.7	41.7	47.9	..	2.9	2.5	..	0.6	0.5
Middletown	21	79	100	..	..	..	*	54.8	49.1	*	*	3.0	..	*	2.0	*	*	14.0
Rochester	13	240	253	..	*	2.0	*	*	79.0	*	65.0	64.1	..	0.4	0.3	..	..	..
St. Lawrence	34	187	221	..	..	..	*	34.6	35.6	*	17.6	17.2	*	4.8	4.5	*	5.4	8.6
Utica	315	144	459	11.7	3.5	9.2	50.2	59.0	52.9	32.4	36.1	33.6	5.4	1.4	4.1	0.3	..	0.2
Willard	...	303	303	..	..	..	*	72.2	69.7	*	41.9	41.9	..	1.7	1.7	..	..	..
Total	4,504	7,587	12,091	2.2	2.2	2.2	49.9	47.1	48.2	45.1	48.7	47.3	1.7	1.6	1.6	1.1	0.4	0.7

*Percentage was not computed when base was less than 100.

The variation in the rates of improvement in the several hospitals is less for each sex than that in 1928. This is evidence of more uniformity in the reporting of outcome in 1929.

Some marked differences in the rates of improvement are seen by sex. Thus at Binghamton the males exceeded the average, whereas the females were below their average. At Buffalo, though both sexes exceed the average, the females had the high rate of 64.6, the males, 59.4. At Central Islip both sexes exceeded the average, but the males had the very high rate of 77.7, compared with 62.0 for females. At Creedmoor both sexes were below the average though the females had a higher rate than the males. Both sexes were also below the average at Hudson River, where the females had the low rate of 19.7 per cent. These differences are probably explained by selection of patients, usually on the basis of psychosis, for as will be shown, the rate of improvement varies with type of psychosis.

Most of the hospitals showed increases in the rate of improvement in 1929 as compared with 1928. Among the more marked increases were Brooklyn which increased from 46.4 to 54.9; Buffalo, from 59.7 to 63.4; Harlem Valley, from 50.4 to 57.2; Hudson River, from 20.5 to 27.5, and Kings Park, from 39.2 to 47.4. The following hospitals showed appreciable decreases, however: Central Islip, from 71.7 to 67.9; Creedmoor from 45.0 to 41.0; Marcy from 57.3 to 49.1, and Utica, from 80.0 to 62.1. At Binghamton and Hudson River, the males showed an increase, the females a decreased rate of improvement from 1928 to 1929, whereas at Gowanda and Harlem Valley the rates among males decreased and those among females increased. At Central Islip the rate of improvement among the males were almost constant, whereas that of the females showed a decided reduction.

The rate of unimprovement must necessarily vary inversely as that of the rate of improvement. When the latter is high the former must be low and vice versa. The rate of unimprovement for the entire hospital system was 45.1 per cent for males, 48.7 for females, and 47.3 for the sexes combined.

Statistics of reported condition classified by psychosis are shown in Tables 10 and 11. In the latter table, the rates are reduced to a percentage basis.

TABLE 10. REPORTED CONDITION* BY PSYCHOSES OF PATIENTS TREATED IN OCCUPATIONAL THERAPY DEPARTMENTS OF THE NEW YORK CIVIL STATE HOSPITALS DURING THE YEAR ENDED JUNE 30, 1929

Psychoses	Total			Recovered			Improved			Unimproved			Died			Unreported		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Senile	57	222	279	..	..	..	23	74	97	29	132	161	5	16	21	..	..	..
With cerebral arteriosclerosis	160	188	348	2	2	4	86	76	162	56	103	159	15	7	22	1	..	1
General paralysis	306	137	443	1	1	2	144	54	198	145	76	221	16	6	22	..	..	..
With other brain or nervous diseases	91	75	166	..	2	2	61	44	105	29	28	57	1	..	1	..	1	1
Alcoholic	208	89	297	27	7	34	113	51	164	66	30	96	1	..	1	1	1	2
Manic-depressive	452	1,583	2,035	25	91	116	274	863	1,137	142	602	744	2	21	23	9	6	15
Involution melancholia	50	288	338	1	8	9	25	148	173	20	124	144	2	8	10	2	..	2
Dementia præcox	2,569	4,002	6,571	5	8	13	1,188	1,770	2,958	1,331	2,160	3,491	21	49	70	24	15	39
Paranoia or paranoic conditions	50	153	203	..	..	..	24	64	88	22	87	109	2	1	3	2	1	3
Epileptic psychoses	115	132	247	6	1	7	53	62	115	50	64	114	4	5	9	2	..	2
Psychoneuroses and neuroses	63	102	165	6	4	10	37	64	101	17	32	49	1	1	2	2	1	3
With psychopathic personality	93	136	229	4	11	15	54	83	137	30	40	70	..	1	1	5	1	6
With mental deficiency	138	273	411	9	10	19	74	120	194	49	140	189	3	3	6	3	..	3
Undiagnosed psychoses	53	77	130	6	3	9	23	38	61	22	35	57	1	..	1	1	1	2
All others including those without psychosis	99	130	229	7	17	24	67	65	132	22	42	64	3	5	8	..	1	1
Total	4,504	7,587	12,091	99	165	264	2,246	3,576	5,822	2,030	3,695	5,725	77	123	200	52	28	80

* At end of year or at time of discontinuance of treatment.

TABLE 11. PER CENT DISTRIBUTION OF REPORTED CONDITION BY PSYCHOSES OF PATIENTS TREATED IN OCCUPATIONAL THERAPY DEPARTMENTS OF THE NEW YORK CIVIL STATE HOSPITALS, DURING THE FISCAL YEAR ENDED JUNE 30, 1929

Psychoses	Total number			Recovered			Improved			Unimproved			Died			Unreported		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Senile	57	222	279	..	..	..	*	33.3	34.8	*	59.5	57.7	*	7.2	7.5	..	..	..
With cerebral arteriosclerosis	160	188	348	1.2	1.1	1.1	53.8	50.4	46.6	35.0	54.8	45.7	9.4	3.7	6.3	0.6	..	0.3
General paralysis	306	137	443	0.3	0.7	0.4	47.1	39.4	44.7	47.4	55.5	49.9	5.2	4.4	5.0	..	..	..
With other brain or nervous diseases	91	75	166	..	*	1.2	*	*	63.3	*	*	34.3	*	..	0.6	..	*	0.6
Alcoholic	208	89	297	13.0	*	11.4	54.3	*	55.2	31.7	*	32.3	0.5	..	0.4	0.5	*	0.7
Manic-depressive	452	1,583	2,035	5.5	5.8	5.7	60.6	54.5	55.9	31.4	38.0	36.6	0.5	1.3	1.1	2.0	0.4	0.7
Involution melancholia	50	288	338	*	2.8	2.7	*	51.4	51.2	*	43.0	42.6	*	2.8	2.9	*	..	0.6
Dementia præcox	2,569	4,002	6,571	0.2	0.2	0.2	46.2	44.2	45.0	51.8	54.0	53.1	0.8	1.2	1.1	1.0	0.4	0.6
Paranoia or paranoic conditions	50	153	203	..	..	..	*	41.9	43.3	*	56.9	53.7	*	0.6	1.5	*	0.6	1.5
Epileptic psychoses	115	132	247	5.2	0.7	2.8	46.1	47.0	46.6	43.5	48.5	46.2	3.5	3.8	3.6	1.7	..	0.8
Psychoneuroses and neuroses	63	102	165	*	3.9	6.1	*	62.7	61.2	*	31.4	29.7	*	1.0	1.2	*	1.0	1.8
With psychopathic personality	93	136	229	*	8.1	6.6	*	61.1	59.8	*	29.4	30.6	..	0.7	0.4	*	0.7	2.6
With mental deficiency	138	273	411	6.5	3.7	4.6	53.6	43.9	47.2	35.5	51.3	46.0	2.2	1.1	1.4	2.2	..	0.8
Undiagnosed psychoses	53	77	130	*	*	6.9	*	*	46.9	*	*	43.9	*	..	0.8	*	*	1.5
All others including those without psychosis	99	130	229	*	13.1	10.5	*	50.0	57.7	*	32.3	27.9	*	3.8	3.5	..	0.8	0.4
Total	4,504	7,587	12,091	2.2	2.2	2.2	49.9	47.1	48.2	45.1	48.7	47.3	1.7	1.6	1.6	1.1	0.4	0.7

* Percentage was not computed when base was less than 100.

The average rate of improvement for all psychoses was 50.4 per cent. The maximum, 67.3 per cent, occurred in the psychoneuroses and neuroses, the minimum, 34.8 per cent, in the senile psychoses. Other groups of psychoses with high rates of improvement were psychoses with other brain or nervous diseases, alcoholic psychoses, manic-depressive psychoses and psychoses with psychopathic personality. Psychoses with rates below the average were psychoses with cerebral arteriosclerosis, general paralysis, dementia præcox, and paranoia.

Among males the average rate of improvement was 52.1 with a maximum of 67.3 in the alcoholic psychoses and a minimum of 46.4 in dementia præcox. Other psychoses with rates above the average were: Psychoses with cerebral arteriosclerosis, manic-depressive psychoses and psychoses with mental deficiency. Among females the average rate of improvement was 49.3 with a maximum of 69.2 in psychoses with psychopathic personality and a minimum of 31.3 in the senile psychoses. Other psychoses with rates above the average included manic-depressive psychoses, involution melancholia, and psychoneuroses and neuroses.

Variations in the rates of improvement in the several clinical groups were less in 1929 than in 1928.

Some significant sex differences in rates of improvement may be noted. In psychoses with cerebral arteriosclerosis, 55.0 per cent of the males and only 41.5 per cent of the females showed improvement. In general paralysis the rates were 47.4 and 40.1 for males and females, respectively. In the manic-depressive psychoses, the rates were 66.1 and 60.3 per cent for males and females, respectively. In psychosis with mental deficiency there was an important difference, the males having a rate of 60.1 as against 47.6 for females.

Of the groups of psychoses with more than 100 patients under treatment in occupational therapy during the year, all but four showed increased rates of improvement in 1929 compared with 1928. These four were: General paralysis, which declined from 46.7 to 45.1 per cent; paranoia with rates of 45.4 and 43.3; psychoneuroses and neuroses with rates of 70.7 and 67.3; and psychoses with psychopathic personality, which decreased from 68.7 to 66.4 per cent.

The facts of the present review may be summarized as follows:

1. As judged by the total number of patients cared for in the occupational therapy departments (which is the most satisfactory criterion available at present) there has been an upward trend in this activity since 1923 both in absolute numbers, and relative to the entire hospital population. Nevertheless, when one contrasts the totals in occupational therapy with those in the entire State hospital system, it becomes evident that there is still room for great expansion.

2. Relatively more females than males are receiving occupational therapy.

3. The several hospitals continue to differ widely in the degree of application of occupational therapy, though there is less variation in this respect than in 1928.

4. There is great variation in the degrees in which the several groups of psychoses are represented in the occupational therapy departments though the variation is less than that in 1928.

5. The rate of recovery in 1929 was slightly less than that reported in 1928, but the rate of improvement was slightly higher. The combined rate of improvement was slightly greater than that in 1928. It may be concluded that 50 per cent of the patients in occupational therapy show some degree of improvement.

6. The rates of improvement differ from hospital to hospital and from psychosis to psychosis. The variations in both cases in 1929, however, were less than those that occurred in 1928.

Great satisfaction should accrue to the director of the bureau of occupational therapy and to the hospital staffs of occupational therapists from the results herein set forth. Diligent efforts are succeeding in bringing greater numbers of patients into the occupational therapy system from year to year, and this is accompanied by a gratifying index of improvement in the patients. The ever-declining measures of variation in numbers and outcome of treatment point to an intelligent effort at standardization. The eight years of constant progress which have marked the history of occupational therapy in this State makes us confident of still further advances in this important department of State hospital work.

BOOK REVIEWS

The Human Mind. By KARL MENNINGER, M. D., 445 pages; price $3.50. Alfred A. Knopf, publisher, New York, 1930.

This book concerning the human mind is written in a novel and interesting style. It is not a treatise on the structure of the brain, it does not deal with the development of the mind of man, nor does it illustrate laboratory attempts to measure mental faculties; but through examples of man's strange beliefs, bizarre conduct and irrational acts it throws a flood of light on the functioning of the mind.

We are not without experience in learning about the normal through the study of the abnormal. The importance of fresh air, exercise, good food, cleanliness and recreation has been recognized, not so much through the study of normal functions of the body as through learning of the ravages of disease, notably tuberculosis, through bitter experience. So in indicating the functions of the mind with a view toward mental hygiene for the general reader, Dr. Menninger has elected to make laboratory use of bizarre conduct, queer ideas and irrational beliefs. He draws his material from his private practice, from clinic patients, from newspapers, magazines, the Bible and other sources, such material having been gathered from a rich clinic experience and from a wide range of reading over a period of many years.

There can be no question as to the need of a public educational campaign in mental hygiene comparable to the campaign in public health. Dr. Menninger in contributing this volume has rendered a genuine service in this direction. The book is written in an attractive way; it is absorbingly interesting and leaves something to the imagination. While intended for the general reader, the psychiatrist who deals with patients in institutions, the neurologist, who is chiefly occupied with organic cases, and the psychologist, who is interested in intelligence, may read it to advantage.

Through reference to the life history of man, to current or ancient beliefs, to incidents in everyday life and to symptoms of certain patients, it deals with many phases of human thought. It makes clear that such mental states as fears, obsessions and delusions arise in the mind from understandable causes, just as do more normal mental attitudes such as prejudices, jealousies or extreme loyalties. An understanding of the workings of the mind explains both.

The book is replete with arresting examples of the perversities, the peculiarities and the irrational beliefs of man, all used as scientific illustrations. This volume has been widely and favorably reviewed. The following quotation shows how a newspaper account of bizarre conduct may be used to illustrate a particular mental trait.

SHE KEPT HER WORD

"One morning Mrs. Wickham was cutting bacon for breakfast. She and her father-in-law were quarreling.

"Old man Wickham made some remark she resented.

"She laid down her butcher knife and started for the door.

"Where you going? her husband asked!

" 'I'm going to bed, and I'm never, never, never going to get up again,' answered the wife as she walked into her room and slammed the door.

"She stayed in bed all that day. Her husband, thinking to humor her, brought her meals. The next morning she refused to get up. Again the husband brought her meals. The third day was a repetition of the first and second. So were the fourth and fifth and sixth.

" 'She'll get over it,' said the neighbors when they heard of what was going on over at the Wickham farm.

"Mrs. Wickham spent her time reading books and writing poetry.

"Neighbors came to see her after she took to her bed. But she refused to see them. Gradually these visits ceased and she was let severely alone.

"Her husband called a doctor.

" 'There's nothing the matter with her,' said the physician. 'She can get up whenever she wants to.' But she didn't want to.

"Specialists from Des Moines were brought in. They could find nothing wrong with the woman.

" 'Get her to say she will get up and she will be all right,' they said. But her husband couldn't get her to want to leave her bed.

"The village grew into a good sized town. A railroad was built through the place. Mrs. Wickham could hear the whistle of the locomotives as they passed near her house. But she couldn't see them. Her room was on the opposite side of the house, and she refused to leave her bed and go to the window.

"When the telephone exchange was set up in Tiptown, the Wickhams had a telephone installed. Mrs. Wickham never saw it. It was in another room.

"Styles in clothes did not interest her. She didn't wear any clothes, except her nightdress.

"Tiptown grew until it almost inclosed the Wickham farm. The farm became very valuable. When the father-in-law died, her husband became sole owner of the place. But he gave up farming and went to raising collie dogs so he could be at home all the time and could look after his wife.

"Two years ago the husband, worn out with 36 years of constant waiting on his wife, died. Mrs. Wickham went to the funeral. But she had to be carried. She could not walk.

"But she does not express a single regret over her wasted life."

Minneapolis Journal, April 3, 1922.

BROWN.

Gynecology for Nurses. By GEORGE GELLHORN, M. D., F. A. C. S., Professor of Gynecology and Obstetrics and Director of the Department, St. Louis University, School of Medicine, St. Louis, Mo. 12mo. of 275 pages with 145 illustrations. Philadelphia and London: W. B. Saunders Company, 1930. Cloth, $2.00 net.

The book is divided into Part I, "The Female Genital Organs in Health and Disease" and Part II, "Gynecological Nursing." Each chapter contains full and concise descriptions supplemented by many excellent illustrations. Whenever technical terms are used explanation follows. The material is well presented and written in language the nurse can easily understand. The directions for the various nursing procedures are clearly and fully outlined. At the end of each chapter a list of questions for review is found. The last chapter is an excellent and interesting condensed history of gynecology.

The author by reason of his extensive practice as a gynecologist and teacher is well qualified to write of this subject. The arrangement, he tells us in the preface, is the same which he has followed in his lectures to nurses during the past 20 years.

The student, the nurse and the instructor should be indebted to Dr. Gellhorn for this splendid book which will be found of decided value whenever reliable information regarding gynecological nursing, etc., is wanted.

TADDIKEN.

Obstetrics for Nurses, New (9th) Edition. By JOSEPH B. DELEE, M. D. Professor of Obstetrics and Gynecology, University of Chicago, School of Medicine; Obstetrician to the Chicago Lying-In Hospital and Dispensary. New (9th) Edition, Revised. 12mo. of 645 pages, with 269 Illustrations. Philadelphia and London. W. B. Saunders Company, 1930. Cloth $3.00 net.

For many years Obstetrics for Nurses by Joseph B. DeLee, M. D., has been used by most schools of nursing as a text and the fact that a ninth revised edition has just been published is sufficient proof of its value and popularity.

In the present volume many additional illustrations have been provided, the subject matter has been brought fully up to date and the book presents in a clear, interesting and practical way, all essential facts and all necessary information required by the nurse for the study and practice of the important subjects of Obstetrics and Obstetrical Nursing. Schools of nursing familiar with the earlier editions will undoubtedly use the ninth. The reviewer, without reservation, recommends it to instructor, student and graduate.

TADDIKEN.

The Structure and Meaning of Psychoanalysis, as Related to Personality and Behavior. WILLIAM HEALY, M. D., AUGUSTA F. BRONNER, Ph. D., and ANNA MAE BOWERS, A. B., New York. Alfred A. Knopf, 1930.

It is now over three decades since Freud started on his epoch-making formulations and during this entire period Freud has repeatedly emphasized the fact that he has not been in a position to construct what might be considered anything like a clear-cut system. On the contrary, he has constantly refrained from any such inference and he has advised his commentators not to regard psychoanalysis as a finished product. Under Freud's guidance psychoanalysis has always been in a fluid state. Freud's truest followers, those who have most intelligently understood him, have carried along the same investigative and open attitude.

It must be a distinct pleasure for Freud to know that in *The Structure and Meaning of Psychoanalysis* the authors have been notably careful throughout the book to inculcate the research spirit. One does not get the feeling that psychoanalysis is sharply circumscribed, yet there is clarity of expression even far out into peripheral topics.

The Structure and Meaning of Psychoanalysis represents a titanic effort. Its foundation had to be minutely planned, for to give a vivid and understandable presentation of Freudian doctrines means among other things a vision that is at once clear and concise. It is just that sort of perspicacity that makes the work conspicuous.

It is refreshing to read a book on psychoanalysis that is not replete with polemics, at least from the standpoint of the authors. The latter are remarkably free from defensive or offensive controversy, although they have regularly introduced concepts of others often of a disputative character. One may gain a fair idea of the seeming impartiality of Healy, Bronner and Bowers through the index of authors; of the 65 authors from whom certain views on psychoanalytic points of investigation have been drawn, one may mention Adler, Bleuler, Clark, Ellis, Jung, MacCurdy, McDougall, Prince, Rank, Rivers and Schilder. The manner of presentation is well stated on the jacket, viz., "Undiluted, the basic concepts of Freud and of his ablest followers are given on the left hand pages; on the right hand are the elaborations, corroborations and divergences of Freud, Jung, Jones, Ferenczi and others."

This is no book for the novice. It is difficult to understand how anyone not soundly conversant with clinical material could grasp the full meaning of the contents. However, to those who are clinically versed there is nowhere to be found a presentation that is so logical, coherent and thorough. The authors have wisely refrained from references to the multiple and variable uses to which psychoanalysis has proved itself of service.

This attitude adds to clarity and conciseness. The pivotal issues are stressed from the standpoint of mental deviations and therapy forms the concluding chapter. The individual is the nucleus.

The book is excellently indexed. Indeed, it is not at all improbable that the reader will let the index serve the manner by which he consults the book. After all, probably with the majority, particularly with those who already have some conception of the fundamentals of psychoanalysis, there will be little continuous reading page by page. Still the material is so arranged that continuous reading is easy.

Another accomplishment of no small merit comprises the uniformity of nomenclature throughout the book. Of course, terminology in psychoanalysis is still unsettled here and there, but the authors have taken care not to add any further complications to those already existing. Indeed, here, as elsewhere, the authors have carried over the impersonal presentation of psychoanalytic concepts. They may be happy in the thought that, though they may not be quoted often, their book will probably be *quoted from* with great frequency; a fine piece of work, admirably executed.

HINSIE.

Mental Disorders, a Handbook for Students and Practitioners. By HUBERT J. NORMAN, Medical Superintendent, Camberwell House, London, etc. William Wood & Company, New York.

The author in apologizing for another book on "Mental Disorders" hopes that if nothing new is presented at least something may be gained by the reader "in the way of looking at old truths from a different angle." He then proceeds immediately to the description of the various psychoses reserving to the last, in Section 2, a general consideration of the history of mental disorders, his conception of psychology, the legal problems involved in insanity and an appendix in which is to be found some curiosa in mental afflictions.

The classification used is not according to American standards and would be very confusing to recent graduates. The text presents nothing new, the illustrations are not convincing and in general the book is disappointing to an American reader.

The most interesting parts to the reviewer were the chapters on Historical Survey, Clinical Examples in Life and Literature, and Legal Considerations. Since the latter has reference to the English Lunacy Acts they are interesting in comparison with American procedures.

Appendix "B" on Mowgli or Wild Children, and "E" on Exotic Forms of Mental Disorders are two brief descriptions of certain mental disorders not often seen in print.

GRAY.

The Opium Problem. By CHARLES E. TERRY, M. D., and MILDRED PELLENS for The Committee on Drug Addictions in Collaboration with The Bureau of Social Hygiene, Inc., New York City.

The committee organized in 1930, recognizing that there were widely divergent views on this problem, in its causes, nature and ultimate solution, determined on a study of opium and its derivatives anticipating that a thorough investigation would point the way to a scientific solution.

At first their efforts were directed toward a review of the literature to orient themselves. A study was then made more or less limited to chronic opium intoxication as a social problem and as an individual problem, which has been presented in this volume, considerably condensed, in the hope that it would incite a further interest in the problem.

The committee found it so extremely complex and far-reaching, so intimately interwoven with public health, commerce and trade, and social customs and that it has been evolved so insidiously they could not adequately bring out all the various phases. A great deal of controversy has arisen on nearly every point developed, each investigator having a different opinion on the administrative procedures, legislative acts, etc., necessary to its control.

The volume runs to over a thousand pages, all of which is surprisingly well written for a report of this nature and easy to read. The table of contents as well as the index is quite complete, reference to the subject as well as author permits one to find easily any part of the entire subject.

Chapter 1, opens with an estimate as to the extent of the use of opium and its derivatives and shows immediately the diversity of opinion on the general subject; estimates as to the chronic users of opium in the United States, for instance, vary all the way from a few thousands to several millions. Quotations and extracts from many sources, previous reports on other investigations extending over 60 years are found, also tables indicating users, addicts and amounts involved will be of great help to future investigators.

Chapter 2, discusses the development of the problem indicating the causes which led to the widespread use of the drug. Chapter 3, considers the etiological factors and again shows what a wide variation different observers have of the solution. Chapters 4 to 7 take up the general nature, effect of the drug, the pathology, somatic and psychic changes, symptomatology and effects of withdrawal. Chapter 8, "Types of Users" epitomized indicates it is not restricted to any social, economic, mental or other group, that there is no type which may be called the habitual user of opium but that all types are actual or potential users. Chapter 9, on treatment covers some 111 pages setting forth the views on this point of many of our best known physicians for the past 100 years.

Three hundred pages then follow with various chapters taking up the control of the problem from the international standpoint and the state and municipal methods employed by different nationalities.

Nine appendices are added, the first one concerns the International Opium Convention signed at The Hague, 1912, giving the names of the countries engaged, and describing the responsibilities of the contracting powers. Other appendices include later opium conferences and their agreements, various acts of the United States regulating the narcotic problem and finally a digest of editorial literature on the Harrison Narcotic Law.

The bibliography is most complete, over 375 references, from the literature of all countries being given.

This volume is not only valuable as a book of reference but is worth a place in the library of any physician or hospital which undertakes the treatment and care of narcotic habitues.

GRAY.

Comparative Neurology, a Manual and Test for the Study of the Nervous System of Vertebrates. By JAMES W. PAPEZ, B. A., M. D., Cornell University. Illustrated by Mrs. Pearl S. Papez. $6.00. Thomas Y. Crowell Company.

The aim has been to provide an introductory laboratory course of the nervous system for students of biology, psychology, etc., and medical students. Part 1 takes up the gross structure of the brain of mammals, including the cat, dog and various primates. Excellent illustrations showing the topographical areas are plentiful, but the reviewer objects to the system of numbering the various areas and referring to pages 26 and 27 where the author has listed the whole.

Part 2, on the "Microscopic Structure of the Mammalian Nervous System," has many fine illustrations and schematic drawings that greatly aid in understanding the text; they are described and the parts named.

Part 3, is devoted to "Brains of Lower Vertebrates," reptiles, birds, amphibians, etc. The last chapter, number 40, discusses the evolution of the forebrain.

On page 384 with a reference to page 9, we find a classification showing the evolution of the phylum chordatum from the most primitive form up to the various orders of mammals.

The paper is of good quality, the print clear and the author has identified important facts by a heavy type which makes for easier reading. The text is arranged to provide a graduated course in laboratory procedures, and while the subject is highly specialized the author has presented it in an easy, natural manner so that one's interest is sustained.

Bibliographic references are found at the end of each chapter, and a fairly comprehensive index is helpful.

Recognizing the need for a laboratory course in comparative neurology as fundamental to a better understanding of the social problems of the day the reviewer believes the author has made a valuable contribution to science.

This book should be in the library of any student who is about to take a special course in neuroanatomy. The reviewer regrets he did not have the advantage of its clear text while taking special work at the Psychiatric Institute.

GRAY.

Mental Aspects of Stammering. By C. S. BLUEMEL, M. D., 145 pages. Williams and Wilkins Co., Baltimore, Md.

The first four chapters of the book are devoted to the causes and nature of stammering, which the author characterizes as a thought disturbance, not a speech disorder. Short case histories are presented illustrating the genesis of stammering in early fright, imitation, painful association and excitement. Stammering manifests itself in speech merely because speech reproduces thought. In a short chapter on psychoneurosis the author considers as forms of stammering disturbances of writing, swallowing, breathing, the various ties, and hysterical paralyses. He warns that organic causes must be ruled out before the diagnosis of psychoneurosis is established. St. Vitus dance is evidently regarded as having an organic rather than a neurotic origin, as this disorder is included in the case reports of organic disturbances with paralysis agitans and multiple sclerosis. In his chapter on "recoil" the author does not agree with Wyneken's theory that a stammerer is a "speech doubter." According to the author's theory the difficulty is occasioned by a temporary amnesia or loss of memory for the word he wishes to speak. His memory for word sounds is weak. There is a recoil of the sound from the mind. There is a break in the continuity of consciousness. Recoil may vary in degree from momentary stoppage to a complete block. The writer does not attempt in this chapter to explain the exact mental mechanism by which shock, fright, etc., bring about a disturbance in the continuity of consciousness.

In the remaining eight chapters the principles and methods of speech correction are elaborated for kindergarten, grade school, high school and adult re-education. Thought training through drill, signals, relaxation, habits of obedience, and self-control is outlined in considerable detail. The role of parents and the assistance which may be given in the home are briefly discussed.

To meet the needs of the psychiatrist there is scarcely enough space

devoted to an analysis of the emotional and psycho-sexual life of the child, or his relation to parents, siblings and associates. The book, however, is written in direct, vigorous style, devoid of technical language. It is primarily intended for teachers, and for the stammerer himself. It should be of definite value as a practical manual in the treatment of stammering.

TOWER.

A Study Outline Designed to Assist Students of Nursing Who Are Taking an Introductory Course in Educational Psychology. By MAUDE B. MUSE, R. N., M. A., Teachers' College, Columbia University, New York City. Second edition, revised. W. B. Saunders Company, Philadelphia.

The author quotes from the introduction to the first edition: "This syllabus is designed as a study outline for the student and a summary record of her work in the course. An attempt has been made to present the minimum subject matter which should be covered in a course in educational psychology for pupil nurses. Additional work upon each topic presented has been included for the schools of nursing which are able to offer longer courses on the subject. The entire course as outlined will require about 60 hours. It should prove useful in the courses now being offered for graduate nurses in various colleges and universities."

From the preface to the second edition, we quote as follows: "A revision of the Study Outline is desirable at this time in order to make it conform to the new edition of the text book, Psychology for Nurses. Furthermore, in making the revision it has been possible to bring the additional references on each topic up to date. A few minor changes in spacing and assignments have been made which should improve the usefulness of the syllabus."

This outline amply fulfills the purpose for which it was intended, and undoubtedly will be of decided assistance to students.

TADDIKEN.

Children at the Crossroads. By AGNES E. BENEDICT. Drawings by Cyrus LeRoy Baldridge. 238 pages. Price $1.50. Division of Publications, The Commonwealth Fund, New York.

In this series of charming stories Miss Benedict shows the visiting teacher at work in the country. The characters and problems are both real although the identity of the individuals and places is not revealed. Each story presents a typical problem: Raymond, the "bad boy" of his community; Fanny, who had gotten beyond the control of her father and grandmother: Tim, handicapped by having a drunken father and a

wretched home; Buster, who wanted a home; Clem, whose father knew nothing but work; Millie, dull, queer, with the habit of taking things; Bonny, who sorely needed a better chance; The Riley boys, despised and rejected, yet with good latent abilities; and Elizabeth, exceptionally bright but bored and developing disagreeable attitudes.

With literary art the author tells how the visiting teacher dealt with each case. The understanding, skill and patience displayed reveals an almost superhuman social worker.

The book clearly shows the value of the visiting teacher in rural districts, but more than that it indicates the need of expert guidance of both parents and children in meeting the many adverse situations of home and school life in rural districts.

Failure and delinquency can be prevented. The Commonwealth Fund through its studies and publications is pointing out the way. "Children at the Crossroads" is a worthy contribution to this noble undertaking.

POLLOCK.

Foursquare. By Dr. John Rathbone Oliver. 305 pages. The Macmillan Company, New York.

Foursquare is an unusual autobiography. It is the record, set down with consummate skill, of a life full of interesting experiences in widely differing fields. The title "Foursquare" indicates the author's four professions, namely: psychiatrist, criminologist, teacher and priest. The book, however, deals principally with his work and observations as chief medical officer to the supreme court of the city of Baltimore and with his religious thoughts and activities. Along with significant details of his work he gives his views on a large variety of subjects, such as mental tests, capital punishment, alcohol, drugs, books, etc. Perhaps the most interesting part of the work is that dealing with his work with criminals in the Baltimore courts. This almost unique service has been of great value in helping to secure intelligent and just treatment of criminals. It points the way to the better administration of criminal justice.

The author sets forth the benefits that have come from the federal anti-narcotic laws, but is extremely bitter against the prohibition laws. He states that he forced himself to write about prohibition in spite of the fact that it was a dreadful bore. It is regrettable that the author felt impelled to insert this chapter on "alcohol" as it adds nothing to the beauty and value of the work.

The book has unusual charm as it blends with masterly art the inquiring spirit of the psychiatrist and criminologist with the tender sympathy of the priest.

POLLOCK.

Practical Dietetics; Diet in Health and Disease. By ALIDA FRANCES PATTEE. 17th Edition. Published by the author at Mount Vernon, N. Y.

This is a very comprehensive and well-written textbook on practical dietetics. It is evident that the author has made a thorough study of the subject, and the matter is presented in a readable and understandable manner. The book should be of value as a manual in teaching practical dietetics in training schools.

It is divided into three parts. Part I covers the principles of nutrition and food preparation. Under this heading are included the classification of food and nutrition, food values and food requirements, food sanitation, methods of cooking, preparation of the tray, measures and weights. Part II covers the practical application of the principles of nutrition. In this section the various foods, animal and vegetable, are classified and discussed. The last two chapters take up desserts and beverages. Part III covers diet therapy. Here the classifications are: Feeding the sick, the normal diet and basic hospital diet, diet in disease and diet in special conditions.

In addition there is an index to recipes and a general index.

After each chapter are questions for study which cover practically all of the subject matter.

ROSS.

Recording and Reporting for Child Guidance Clinics. The Commonwealth Fund. Division of Publications, New York.

In the belief that many of the problems of adults with respect to mental health and criminal behavior find their origin in traits and behavior patterns acquired in childhood, a systematic attempt was begun by the Commonwealth Fund, almost a decade ago, to provide sympathetic and scientific guidance to those children known as "problem cases." Demonstration clinics were set up in various cities. These resulted in the subsequent organization of community clinics. The movement is now gathering impetus and a very rapid growth may be expected.

Accurate and uniform records and reports were recognized as essential to the efficient conduct of the clinics but inasmuch as the movement was entirely experimental, the forms had to submit to progressive modifications. The guide prepared by Miss Clark represents the fruition of several years' study of a complicated problem. There can be no doubt that it will be the essential reference for the statistical recorders of clinics in the future.

The clinic records serve several purposes. They become a check upon the office routine. They discourage the use of vague language in the compila-

tion of histories and other reports. They become the basis of monthly and annual reports, and thus make possible the discovery of trends, and the comparison of results in different clinics. They provide accurate data for the study of the characteristics of problem children, and also make possible the conduct of research along specialized lines.

A disturbing factor in much record keeping of the past has been the absence of uniformity in terminology, and the tendency to gather data which did not lend themselves to comparison with basic information such as that compiled by the Bureau of Census. It is therefore gratifying to observe that the present handbook has been prepared with due regard to the standardized terminology of related fields, such as mental disease, feeblemindedness, epilepsy, juvenile delinquency, etc. It thus adds to the growing number of standardized fields of social research.

The author very properly points out that the records must be governed by the nature of the clinic activities and that these in turn revolve about the problem child. The statistics must therefore indicate not merely the routine of the clinic, but the nature of the child, and the effect of the several clinical activities upon him. Experience in related fields has taught us that it is possible to deceive one's self as to the outcome of treatment, unless one resorts to adequate follow-up and systematic recording of facts. The child guidance clinic is still in its infancy and therefore it is possible to give early consideration to this important problem. Constant checking of results is a wholesome stimulant. Records and reports must play an important part in this type of self-criticism.

The author suggests that improvements in the technique of the clinics may require corresponding changes in the records and reports, but the thoroughness and clarity of the present guide together with the flexibility of the system, make it evident that it will be the authoritative text on the subject for a long time to come.

MALZBERG.

A Point Scale of Performance Tests. Vol. 1, Clinical Manual. By GRACE ARTHUR, Ph. D. 82 pages. The Commonwealth Fund, Division of Publications, New York.

The author has selected from the many performance tests now in use those which discriminate well between successive age levels, and has standardized them as one scale. She says that the primary value of the scale is to supplement the Binet rating; but it may also be used in cases of language difficulty or handicap, speech or hearing defect, or emotional disturbance, where a verbal test rating is unsatisfactory or impossible.

Two forms of the scale have been standardized, the first for general use, second for a re-test when Form I has already been given. The chronologi-

cal age norms of Form I are "based on the scores of about 1,100 public school children of a good middle-class 'American' district," the norms of Form II (the re-test) on the scores of 535 of the same children who were given Form I. In 50 per cent of the cases who were given Form I, the I. Q. on this test is within 5 points of the I. Q. obtained on a Kuhlmann-Binet or Stanford-Binet test. The author recommends that the original performance rating be confirmed by a re-test with Form II six months or a year after the first examination.

The tests in the two forms are very similar, as follows:

FORM I

1. Knox Cube
2. Seguin Form Board
3. Two-figure Form Board (Pintner)
4. Casuist Form Board (Knox)
5. Manikin (Pintner)
   Feature Profile (Knox and Kempf)
6. Mare and Foal (Healy: modified form)
7. Healy Picture Completion I
8. Porteus Maze
9. Kohs Block Design

FORM II

1. Knox Cube (series reversed)
2. Seguin Form Board (inverted)
3. Gwyn's Triangle Test
4. Paterson's Five-figure Form Board
5. Glueck's Ship Picture Form Board
6. Healy Picture Completion II
7. Porteus Maze (number at left of subject)
8. Kohs Block Design (designs inverted)

The two-figure board on Form I and the triangle test on Form II are given "to initiate the subject into puzzle test procedure, and the scores are not included in the final rating."

For each form are given detailed directions for procedure, tables to convert scores into points, and a table to convert total points into years and months of mental age. The raw score norms for Form I range from 5 to 15 years chronologically, with mental ages from 5 years and 6 months to 15 years and 6 months; for Form II the age groups are from 6 to 16 years, with a mental age range from 6 years and 6 months to 16 years and 6 months. For this form the mental age norms obtained experimentally have been extended down to 6 years and beyond 16 years and 6 months by means of extrapolation, assuming that there is a constant rate of decrease

or increase in ability. It seems, however, that such figures should be used very cautiously, since they were not obtained empirically.

The minimum time for administering the whole scale has been found to be 35 minutes, the maximum 90 minutes, with the mode between 45 and 60 minutes, which compares favorably with other verbal and non-verbal scales.

To one who has not used this point scale but who has had experience with the tests of which it is composed, the scale appears to be carefully and logically standardized. The manual is clear, concise, and gives all necessary information for the successful use of the scale in clinic practice.

ELIZABETH LANE SMITH.

DEATH OF DR. CLARENCE L. CHANDLER

Dr. Clarence L. Chandler, senior assistant physician at the Brooklyn State Hospital, died suddenly and unexpectedly, early in the morning, May 17, 1930, of acute heart failure.

Dr. Chandler, the son of Dr. and Mrs. Luther G. Chandler, was born in Townsend, Mass., June 21, 1879. Following graduation from the Townsend High School he attended Tufts College and Tufts Medical School. After receiving his medical degree in 1904, he went to Fitchburg, Mass., where he served an interneship at the Burbank Hospital. He practiced medicine in Fitchburg for 12 years, and was also active in politics, being a member of the council of that city. At one time he was a candidate for mayor.

He served with the rank of captain in the medical corps for two years during the World War, and was stationed at Camp Merritt and Camp Upton. Following the Armistice he was stationed at the veteran's hospitals at Parker Hill, Boston, Staten Island and the Bronx, N. Y. He resigned the latter position and entered the State hospital service, July 1, 1923, as an assistant physician, and was promoted to the grade of senior assistant physician, February 15, 1928.

Dr. Chandler organized the Franz Waldo Miller American Legion Post in Townsend, Mass., and was the first to sign the charter. He was also a member of the Caducius American Legion Post in New York City; Aurora Lodge, F. & A. M., Fitchburg, Mass., and a 32nd degree Mason. In addition he belonged to the Massachusetts Medical Society, American Medical Association, American Psychiatric Association and the New York Society for Clinical Psychiatry.

He is survived by his wife, Gertrude Smith Chandler.

Funeral services were held at the hospital, May 18, and committal services at the family lot in Townsend, Mass., May 19.

Dr. Chandler possessed a character of sterling excellence. He was always courteous, kind, sympathetic, and understood the art of making allowances for the weaknesses of human nature. Quiet, reserved, a gentleman of simple tastes, he disliked pretense and display in any form. Loyalty to those he served was his motto. He had those qualities of intellect and temperament which marked

him a true deciple of the healing art—a keen diagnostician and a skilled therapeutist. At all times, he gave willingly and freely, of himself, to those who needed his services. Admiration and respect of the highest order by patients, employees, fellow officers and his many friends, belong to him.

We who were close to him, knew the charm of his personality; we enjoyed and hold dear the privilege of his friendship. To us he is not dead, but just away.

The following minute relative to Dr. Chandler was adopted by the medical staff of the Brooklyn State Hospital at a meeting following his death:

"The medical staff of the Brooklyn State Hospital records with deepest feeling, the death, on May 17, 1930, of Dr. Clarence L. Chandler, senior assistant physician.

Dr. Chandler was by professional training and temperament peculiarly fitted for the practice of medicine. His genial personality and kindly attitude endeared him to patients and friends alike.

For nearly seven years he faithfully performed his duties at the Brooklyn State Hospital, and developed staunch friendships among officers, employees, patients and visitors, by all of whom he will be keenly missed.

Be it, therefore, resolved that the medical staff express their heartfelt sympathy to Mrs. Chandler in her bereavement, and, be it further resolved that a copy of these resolutions be published in THE PSYCHIATRIC QUARTERLY."

AUGUST E. WITZEL.

THE FIRST INTERNATIONAL CONGRESS ON MENTAL HYGIENE

The First International Congress on Mental Hygiene, held in Washington, D. C., May 5-10, 1930, was a remarkable meeting—remarkable in conception, organization, scope, personnel, ideas and accomplishments. Few undertakings have been so well advertised or so well carried out.

Credit goes to Clifford W. Beers for conceiving the project and for getting sufficient funds to make it a possibility; to John R. Shillady for managing the advertising and the multitude of administrative details; to Dr. Frankwood E. Williams for arranging the comprehensive program; to Dr. William A. White for fulfilling the responsibilities of president of the Congress with skill, wisdom and dignity; to the staff of the National Committee for Mental Hygiene for preparing and distributing several tons of literature; to the unnamed donor whose gift of $50,000 made the Congress possible; to the foreign delegates who came long distances to exchange ideas with their brothers of other lands; and lastly to the host of Americans who patiently sweltered in the heat and listened with fortitude to papers in foreign tongues.

Altogether it was a wonderful convention. Its immediate visible effect was the organization of the mental hygiene forces of the world in an International Committee on Mental Hygiene; its invisible influence was beyond measure or estimate. It will be reflected for many years to come in wiser laws relating to the mentally abnormal and delinquent classes, in more intelligent handling of behavior problems in children, in better hospitals, better schools, better prisons, and better social relations.

FIFTY-FOURTH ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR THE STUDY OF THE FEEBLEMINDED

The fifty-fourth annual convention of the American Association for the Study of the Feebleminded was held in Washington, D. C., on May 5, 6 and 7, 1930, in conjunction with the First International Congress on Mental Hygiene. The sessions were well attended and all the papers received considerable discussion.

Dr. Harvey M. Watkins, superintendent of the Polk State School

at Polk, Pa., gave an excellent paper on "Sexual Sterilization." He proposed what he termed "a permissive selective sterilization" as a part of the rehabilitation program in the social adjustment of the higher grade types of mental defectives. The whole paper stressed social aspects and advantages of sterilization rather than the more commonly presented eugenical aspect. Professor Charles Scott Berry, professor of educational psychology at the University of Michigan, presented the most modern ideas concerning the aims and methods of education as applied to mental defectives. The paper was intensely practical and deserves the careful attention of all those interested in this subject. Dr. Edgar A. Doll, of Vineland, N. J., presented the mental hygiene aspects of special education, showing how special educational technics for handicapped children have definite mental hygiene value and are important considerations in building a well-adjusted personality. Dr. Ward W. Millias of the Rome State School, stressed the importance of the consideration of the emotional aspect in studying and training the mental defective. Dr. F. W. Wells of the Boston Psychopathic Hospital, read a technical paper dealing with psychometrics and called attention to certain urgent problems in this field. Dr. Helen Montague from her experience in the Children's Court in New York City detailed the various factors underlying delinquency in mentally defective boys. Dr. Ransom A. Greene, superintendent of the Walter E. Fernald State School at Waverly, Mass., called attention in his paper to certain parallelisms which appear to exist in the biogenetic psychoses and some kinds of mental deficiencies. Dr. Neil A. Dayton of the Department of Mental Diseases of Massachusetts, presented a statistical analysis of difficult labor as an etiological factor in mental deficiency, showing that statistically it is not as important an etiological factor as is rather commonly believed. Dr. Abraham Meyerson of Boston, in his inimitable style, gave a paper on the pathological and etiological bases of mental deficiency. Robert York, director of vocations, colonies and paroles at the Rome State School gave a talk on the Placement of the Feebleminded in Industry, essentially a description of the colony plan of the Rome State School. Dr. J. M. Murdoch, superintendent of the Minnesota School for Mental Defectives, brought together the plans of

the various prominent institutions in the United States and the ideas of a few outstanding superintendents of such institutions in a paper on the fundamental principles involved in the construction and organization of institutions for mental defectives. Dr. George L. Wallace, president of the Association, in his address on a state program for caring for the mentally deficient, stressed the following points: Identification, registration, education, supervision, segregation and research.

The papers presented at the meeting are published in the Proceedings of the Association which can be obtained by addressing the secretary.

The total membership of the Association including the members elected at this meeting, is 380.

The officers elected for the year 1930-31 were: President, Dr. H. H. Ramsey, superintendent of the Ellisville State School, Ellisville, Miss.; vice-president, Dr. Harvey M. Watkins, superintendent of the Polk State School, Polk, Pa.; secretary-treasurer, Dr. Howard W. Potter, assistant director, New York State Psychiatric Institute and Hospital, New York City.

THE AMERICAN PSYCHIATRIC ASSOCIATION AT WASHINGTON

The American Psychiatric Association held its 86th annual meeting in Washington, D. C., May 5-9 in conjunction with the meeting of the International Congress on Mental Hygiene. The sessions were well attended, but lacked the characteristic enthusiasm and zest. The intense heat was a subduing factor but the real genesis of the lack of "snap and go" in the association meetings was to be found in the numerous dinners, conferences, committee meetings and section programs of the Congress which claimed the time and energy of the members. Ordinarily the association meeting is a main tent attraction; this year it was only one of numerous side shows. The change was not relished. As one member remarked "It's all right this year but never again." Fortunately international congresses do not come often enough seriously to disturb the progressive course of the association.

Outstanding features of the Washington program were: The presidential address by Dr. Earl D. Bond; the annual address by

Professor Hornell Hart; motion pictures of the treatment of the insane in Germany by Prof. Dr. W. Weygandt, of Hamburg; research studies by Drs. Hoskins, Solomon, Levy, Dayton and Healy.

The meeting of the Section on Convulsive Disorders was held on May 5, the opening paper being "A Statistical Review of Convulsive Disorders in the United States," by Dr. Horatio M. Pollock. This was followed by several other research studies. The two sessions of the section were well attended and keen interest in the problem of the convulsive disorders was manifested.

The various committees of the Association presented comprehensive reports of their activities. The Committee on Statistics called attention to the desirability of having superintendents of mental hospitals report these as such to the American Medical Association instead of designating their hospitals as *hospitals for nervous and mental diseases.* The report of the Committee on Legal Aspects of Psychiatry was discussed upon invitation by Dr. Rollin M. Perkins, chairman of the Committee on Psychiatric Jurisprudence of the American Bar Association, and by Dr. William C. Woodward, chairman of the Committee on Psychiatric Jurisprudence of the American Medical Association, both of whom promised continued cooperation of their associations with the American Psychiatric Association in matters pertaining to medicine and the law.

The following were elected officers of the Association for the year 1930-31: Dr. W. M. English, Brockville, Ontario, Canada, president; Dr. William L. Russell, White Plains, N. Y., vice-president; Dr. Clarence O. Cheney, Poughkeepsie, N. Y., secretary-treasurer. For the Section on Convulsive Disorders, Dr. D. S. Renner, of Skillman, N. J., was elected chairman and Dr. M. B. Hodskins, of Palmer, Mass., secretary.

It was voted to hold the next annual meeting of the Association in Toronto, Canada, from June 1 to 5, 1931.

CONFERENCE ON CHILD GUIDANCE CLINICS

A department conference on child guidance clinics was held at the Psychiatric Institute and Hospital, New York City, April 11, 1930. Those attending included physicians, psychologists and social workers engaged in child guidance work and the members of the Committee on Prevention.

In the morning session general administrative problems were considered. Dr. Sanger Brown, 2nd, assistant commissioner, who presided, discussed general policies and future plans. Dr. James L. Tower spoke concerning the special problems which arise in establishing clinics in rural communities. Dr. Donald L. Cohen discussed the problem of community supervision and social work connected with the clinics, and Dr. T. R. Robie pointed out certain needs of clinical service, follow-up work and other facilities. A general discussion by various members in attendance followed.

In the afternoon Dr. George S. Stevenson, director, Division of Community Clinics of the National Committee for Mental Hygiene, gave a resumé and discussion of the experiences of the work of the National Committee for Mental Hygiene in establishing child guidance clinics. Dr. Stevenson emphasized the fact that no set plan can be established which will meet the needs of all communities. Every state and every local community should work out their problems in accordance with the local conditions and the facilities at hand. Certain standards of clinical work, however, are essential to the success of the work. The appointment of a local clinic committee is helpful in the smaller communities in stimulating interest.

Dr. Philip Trentzsch of the Neurological Institute spoke on clinical aspects of child guidance and emphasized the need of continued clinic study of case material and an open mind in respect to the entire child guidance problem and in the interpretation of symptoms.

Dr. Clarence O. Cheney, chairman of the Committee on Prevention, in summing up the papers, voiced approval of the child guidance clinic movement and pointed out the need of keeping abreast with the work being done in this field. He urged physicians conducting clinics to thoroughly familiarize themselves with present accepted knowledge about child guidance.

ANNUAL INSTITUTE OF OCCUPATIONAL THERAPISTS

The Seventh Annual Institute and Conference of the Chief Occupational Therapists of the State Department of Mental Hygiene was held in New York on April 14 to 16, inclusive, and proved to be one of the most successful and useful of the series. The formal scientific and practical papers and addresses as well as the educational visits, demonstrations and discussions were of a very high order.

The director of the bureau of occupational therapy, Mrs. Eleanor Clarke Slagle, presided at the various sessions and also acted as cicerone during the educational visits.

The first item on the agenda for the opening session was a memorial to the late Dr. C. F. Haviland, which was eloquently presented by Dr. Philip Smith, medical inspector of the Department.

The following papers were presented:

"The Relations of Mental Hygiene to the Public Health Movement," by Dr. Samuel W. Hamilton, assistant medical director, Bloomingdale Hospital, White Plains, N. Y.

"The Growing Need and Value of Curative Occupations in All Types of Institutions for Mental Cases and in Penal and Correctional Institutions," by Hon. William J. Ellis, commissioner, Department Institutions and Agencies, Trenton, N. J.

"The Value of Continued Statistics in Occupational Therapy," by Dr. Horatio M. Pollock, director, bureau of statistics, Department of Mental Hygiene.

"Progress Notes," by Dr. Michael P. Lonergan, clinical director, Manhattan State Hospital.

The second session was devoted to practical craft instruction and demonstrations by Miss Gertrude Peterrein, head teacher, Syracuse State School; Miss Susan Wilson, chief occupational therapist, Brooklyn State Hospital; Miss Elizabeth Campbell, occupational therapist, Manhattan State Hospital; Miss Laura Everett, (Practice training student, Sheppard and Enoch Pratt Hospital), Manhattan State Hospital; Miss Winifred Shaffer, chief occupational therapist, Gowanda State Hospital.

The program for the second day was distinctly novel. In addi-

tion to its great intrinsic value, it emphasized the growing cooperation between New York and neighboring states in medical and hospital affairs. The activities consisted of a visit to the Newark Museum, Newark, New Jersey, which contains one of the best collections of early American quilts and peasant crafts in this part of the world. Through the courtesy of the museum authorities, a member of the museum staff gave a very interesting lecture and many useful notes and sketches were made by the members of the Institute. Recognizing the part that museums play in the civic and educational life of the public today, it has been deemed important that succeeding institutes should take advantage of the opportunities offered by museums in various cities because the interpretation of the exhibits is a very important social contact that may, indirectly, be of value to the patients that are served by occupational therapy facilities.

After the session held at the Newark Museum the members of the Institute were the guests of Mrs. Franklin D. Roosevelt at the studio of the Val-Kill furniture organization. The work was very interesting and of great educational value. Following the visit to the studio, the members were entertained by Mrs. Roosevelt at a very delightful tea in her charming and artistic New York residence.

The program for the last day of the Institute, which consisted of a visit to the new State Psychiatric Institute at the Medical Center, New York City, was of great value and interest to the members. After an introductory talk by Dr. Howard Potter, assistant director of the Institute, on "The Aim and Purpose of the State Psychiatric Institute," the members participated in a "hospital walk" under the guidance of the Institute staff, which illustrated, in a very practical manner, Dr. Potter's lecture.

The Institute's proceedings were concluded with the presentation of an interesting summary of its events by that well-known authority on occupational therapy, Dr. William R. Dunton, Jr., of Harlem Lodge Sanitarium, Catonsville, Maryland, whose presence was, as on previous occasions, most appreciated by the members of the Institute.

DR. PRITCHARD BECOMES SUPERINTENDNT OF BUFFALO STATE HOSPITAL

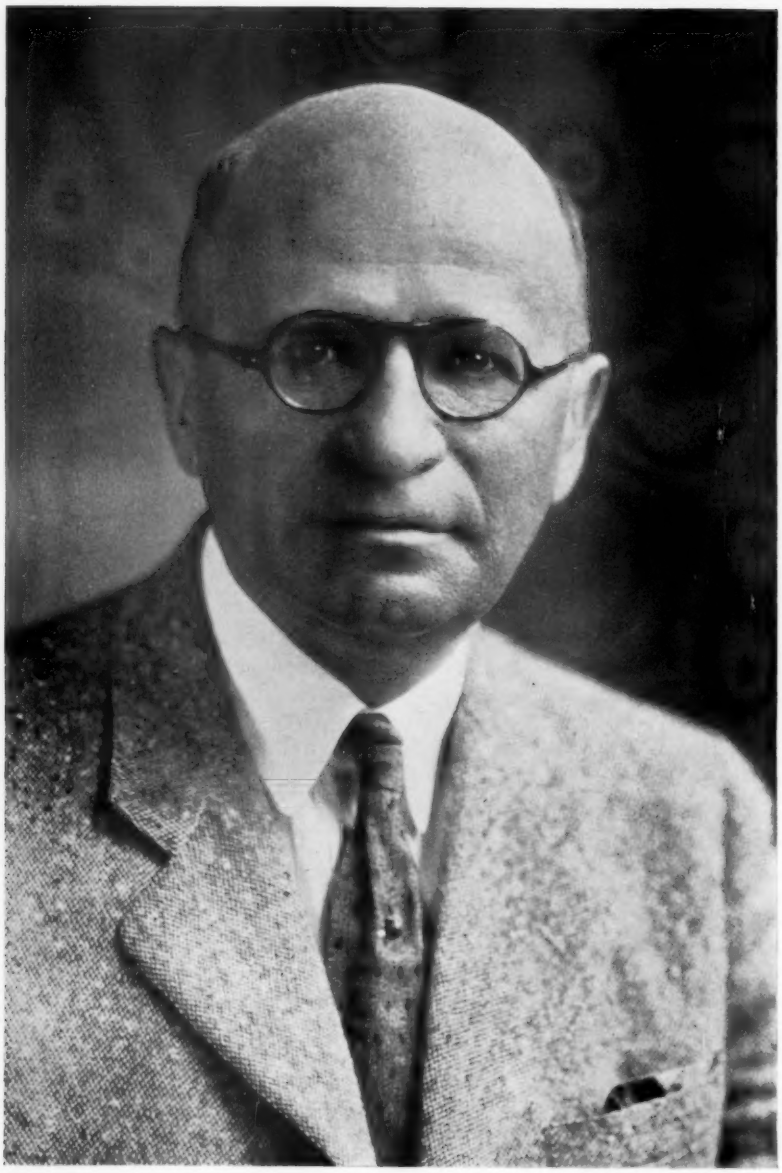
Dr. John A. Pritchard, first assistant physician of St. Lawrence State Hospital, was appointed by Commissioner Parsons on July 1, 1930, superintendent of the Buffalo State Hospital. He succeeds Dr. Isaac J. Furman, who was transferred to Manhattan State Hospital.

Dr. Pritchard was born at Brockville, Ont., Canada, December 31, 1879. His preliminary education was received in the public schools and Collegiate Institute of his native village. In 1899, he entered the Medical College of Queens University, Kingston, Ont., and received his medical degree therefrom in 1903. He entered the State hospital service as clinical assistant at Brooklyn State Hospital (then Long Island State Hospital) May 20, 1903, and was promoted to medical interne in July of the same year. The following year he was appointed junior assistant physician at the Willard State Hospital. In 1906, he was given charge of the laboratory of the institution. In 1910, he was transferred to the Kings Park State Hospital and in 1912 became senior assistant physician. In 1913, he was transferred to the St. Lawrence State Hospital at Ogdensburg. In 1917, he resigned to become assistant physician at Glenmary Sanitarium, Owego, N. Y. The following year he re-entered the State service as senior assistant physician at the Binghamton State Hospital. On January 1, 1927, he was promoted to first assistant physician at the St. Lawrence State Hospital.

Dr. Pritchard is a member of the St. Lawrence County Medical Society and the New York State Medical Society and a Fellow of the American Psychiatric Association. He is a member of the Ogdensburg Rotary Club and has made numerous addresses at service clubs. Through clinic work and other activities he has rendered conspicuous service in promoting the mental hygiene movement in northern New York.

On July 14, 1915, he married Margaret N. Fero, of Bath, N. Y. They have one child, Marguerite Elizabeth.

DR. JOHN A. PRITCHARD



DR. WILLIAM W. WRIGHT

DR. WRIGHT APPOINTED SUPERINTENDENT OF PILGRIM STATE HOSPITAL

Dr. William W. Wright, first assistant physician of Utica State Hospital, was appointed by Commissioner Parsons on July 1, 1930, superintendent of Pilgrim State Hospital. As the institution is not ready for occupancy, Dr. Wright will assist the medical inspector for a few months. It is expected that he will eventually become superintendent at Marcy, when that institution is organized as a separate State hospital.

Dr. Wright was born at Le Roy, New York, October 17, 1873. His early life was spent at Philadelphia, N. Y., where he attended the public schools. Following his graduation from the Potsdam Normal School in 1895, he was, for four years, principal of the village school at Bangor, N. Y. In 1900 he entered the College of Medicine of the University of Michigan and was graduated in 1904. The following year he spent at St. Alexis Hospital, Cleveland, Ohio, where he acted as assistant surgeon for the American Steel & Wire Company, a branch of the United States Steel Corporation.

Dr. Wright was appointed junior assistant physician at the Buffalo State Hospital in September, 1906. After passing through the various grades he was transferred in February, 1912, to the Psychiatric Institute as second assistant physician, at first being associated with Dr. Hoch and later with Dr. Kirby. On November 1, 1917, he was promoted to the position of acting clinical director of the Manhattan State Hospital where he remained until he was appointed, in August, 1918, first assistant physician at the Buffalo State Hospital. From 1912 to 1918 Dr. Wright was instructor in medicine in the department of psychopathology at the Cornell Medical School; attending physician at the Cornell Dispensary from 1912 to 1918, and chief of clinic of the department of psychopathology from 1915 to 1918.

In February, 1924, he was transferred to the Utica State Hospital as clinical director, becoming again first assistant physician at the Marcy Division in June, 1926. Since coming to Utica, Dr. Wright has also been lecturer in psychiatry at the Syracuse University Medical School. Dr. Wright is a member of American

Psychiatric Association, the Society for Research in Nervous and Mental Diseases, the Utica Academy and the Oneida County Medical Society. He is also a member of the following clubs of Utica: The Kiwanis Club, The Curling Club and Cedar Lake Club.

The following are some of the noteworthy articles published by Dr. Wright:

"Etiology of Functional Psychoses"; "Review of the History of Pellagra with the Report of a Case"; "Problem Children"; "A Case of Paranoic Condition Presenting an Unusual Course and Final Recovery"; "The Study of the Trend in a Group of Dementia Præcox Cases"; "Results Obtained by the Intensive Use of Bromides in Functional Psychoses."

Dr. Wright married Gertrude Webb of Granton, Ontario, on October 23, 1912. They have two children.

DR. RUSSELL E. BLAISDELL

APPOINTMENT OF DR. BLAISDELL AS SUPERINTENDENT OF ROCKLAND STATE HOSPITAL

Dr. Russell E. Blaisdell, first assistant physician of Kings Park State Hospital, was appointed by Commissioner Parsons on July 1, 1930, superintendent of the new Rockland State Hospital.

Dr. Blaisdell was born in Franklin, Maine, January 19, 1883. He received his preliminary education in the public schools of Franklin and in Maine Wesleyan Seminary. He was graduated in medicine from the Baltimore Medical College (since merged with the University of Maryland and the College of Physicians and Surgeons in Baltimore) in 1906.

He entered the New York State service at the Hudson River State Hospital in June, 1906, where he served in the capacity of clinical assistant and medical interne until November, 1907, when he was appointed resident physician of the New York State Relief Corps Home at Oxford. On February 1, 1908, he was appointed assistant physician at the Binghamton State Hospital which position he held until March, 1911, when he resigned to engage in private practice in Bound Brook, New Jersey.

On May 1, 1912, Dr. Blaisdell re-entered the State service at Kings Park. In December, 1917, he was promoted to first assistant physician which position he has filled until his present promotion with the exception that he was designated by Commissioner Parsons to serve as deputy medical inspector for a period of one year beginning May 1, 1928.

Dr. Blaisdell conducted the Mineola Mental Hygiene Clinic of Kings Park State Hospital for four years; also attended Vanderbilt Clinic, in connection with which he was appointed instructor in psychiatry in Columbia University for one year.

He is a Fellow of the American Psychiatric Association and a member of the New York Society for Clinical Psychiatry, the American Medical Association and the New York Academy of Medicine.

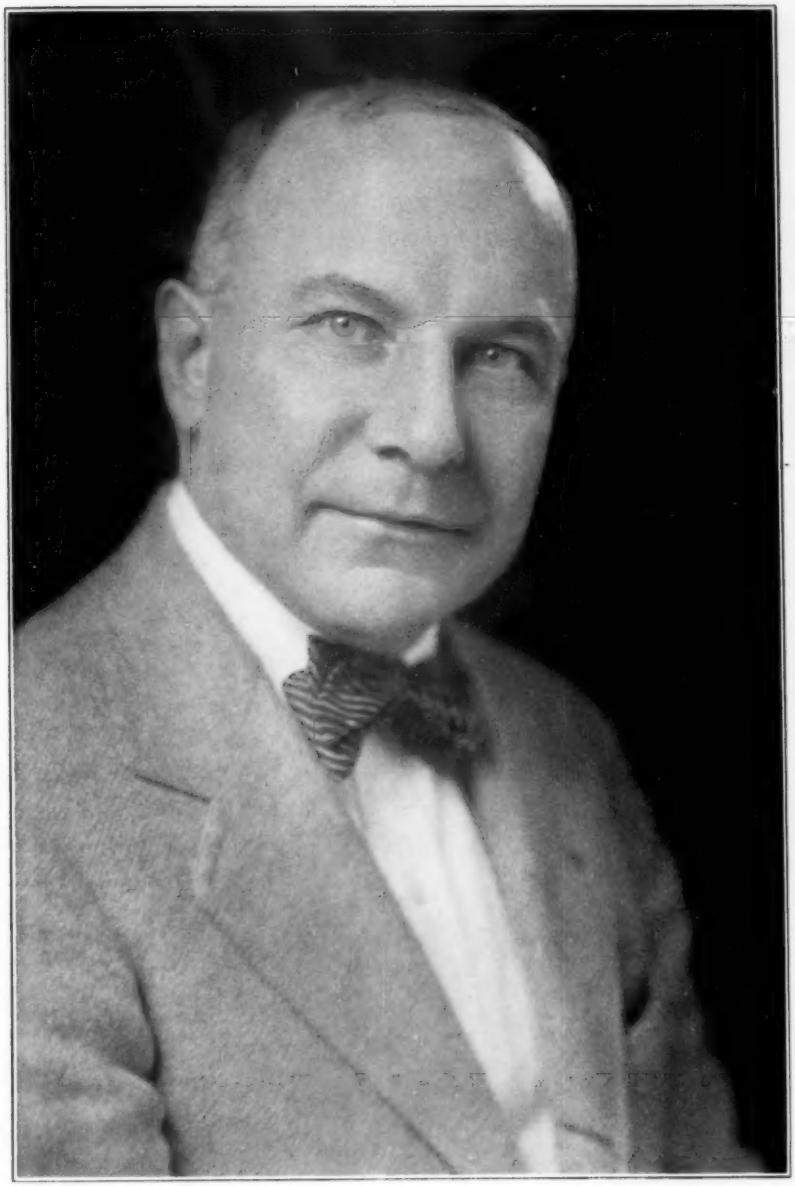
In 1911 Dr. Blaisdell married Miss Sue Underwood of Binghamton, N. Y. They have two sons aged 15 and 10.

DR. STECKEL APPOINTED DIRECTOR OF SYRACUSE PSYCHOPATHIC HOSPITAL

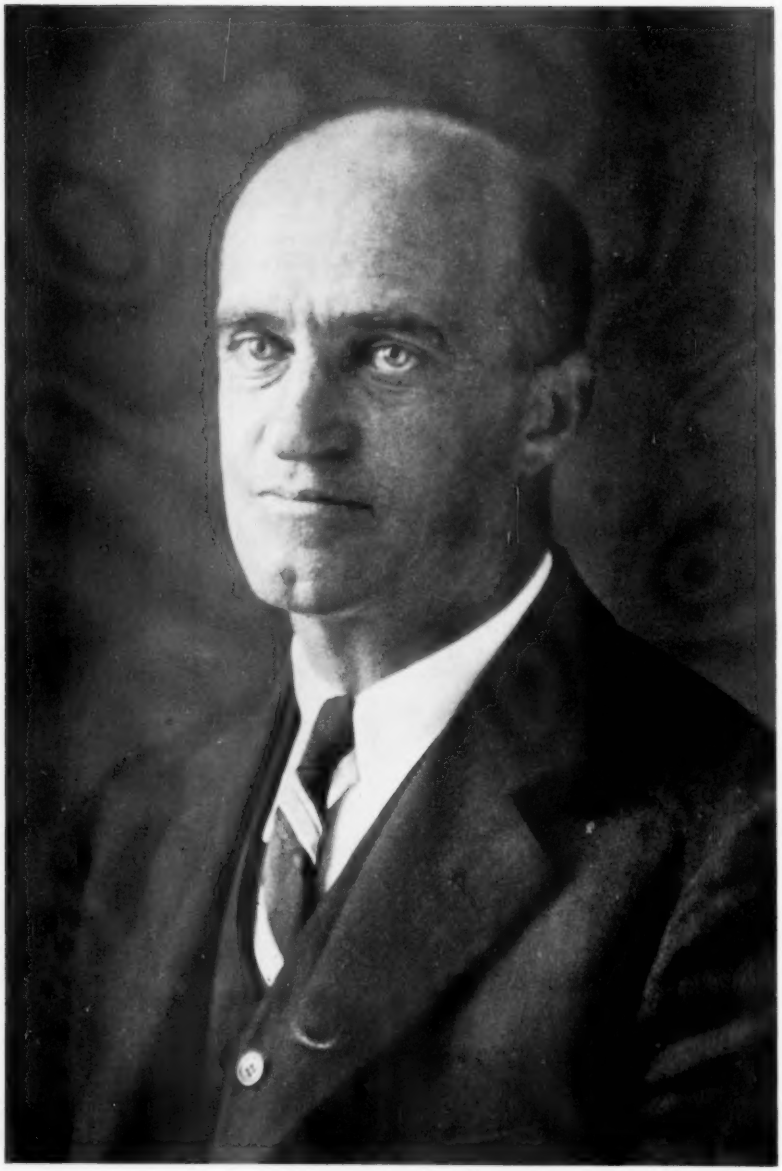
Dr. Harry A. Steckel, who has been superintendent of Newark State School since April 1, 1929, was appointed by Commissioner Parsons director of the Syracuse Psychopathic Hospital on July 1, 1930. As the Syracuse institution is not ready to receive patients, Dr. Steckel will continue for some time as acting superintendent at Newark. In the meantime he will exercise supervision over matters connected with the development of the Syracuse hospital.

As the Psychopathic Hospital is affiliated with Syracuse University, Dr. Steckel will become professor of psychiatry in the medical school.

Dr. Steckel's training and experience eminently fit him for his new position. A detailed sketch of his work previous to his appointment at Newark appears in THE PSYCHIATRIC QUARTERLY for April, 1929.



DR. HARRY A. STECKEL



DR. HARRY C. STORRS

DR. STORRS APPOINTED SUPERINTENDENT OF WASSAIC STATE SCHOOL

Dr. Harry C. Storrs, who had been first assistant physician at Letchworth Village since December 1, 1919, was appointed by Commissioner Parsons superintendent of Wassaic State School, July 1, 1930.

Dr. Storrs was born at Hanover, New Hampshire, January 22, 1886. After passing through the preliminary schools, he entered Dartmouth College in 1903, and graduated therefrom in 1907. Continuing his studies in Dartmouth Medical College he obtained his medical degree in 1910. After a year's interneship at the Mary Hitchcock Hospital at Hanover, N. H., he was appointed physician at the Maine State School for the Feebleminded at Pownal, Me. Entering the New York State service as junior assistant physician at Letchworth Village, May 1, 1912, he passed through the medical grades until he became first assistant physician, December 1, 1919. During the late war he served as a commissioned officer in the Medical Corps at Camp Greenleaf, Georgia.

Dr. Storrs for several years was attached to the Clinic for Maladjusted Children in the Neurological Institute. During the past few years he has cooperated with the Division on Prevention in conducting child guidance clinics.

He is a member of the American Association for the Study of the Feebleminded and in 1929 was appointed a special representative of this association in the Conference on Nomenclature of Diseases. He is a member of the Masonic Club and Rotary Club of Haverstraw, and the Dartmouth Club of New York.

NOTES

—With financial assistance from the Commonwealth Fund, the Massachusetts Society for Mental Hygiene has undertaken a survey of mental hygiene activities in Boston. Other agencies cooperating in the survey are the Boston Council of Social Agencies, the Boston Health League, and the Massachusetts Department of Mental Diseases.

—The proposal to take the power of sentence out of the hands of the judge and to place it instead in the hands of a special board has received practical support in Prussia. Under its new penal system a special board is delegated with power to make a scientific study of all prisoners as a prelude to better classification and treatment.

—Another medical center is planned for New York City. It is to be located in Brooklyn. The Long Island College Hospital Medical School, which is to be separated from the hospital of the same name, will be the nucleus. The four hospitals to be closely affiliated are: Brooklyn, Methodist Episcopal, Jewish and Long Island. Brooklyn State Hospital will be among those to furnish teaching material.

—Through an initial gift of $5,000,000 from Mrs. Walter Greene Ladd of Far Hills, N. J., a new foundation has been created, to be known as the Josiah Macy, Jr. Foundation. The foundation is a memorial to Mrs. Ladd's father. The income of the fund is to be used for medical research in fields requiring the correlation of efforts of medical, biological and social experts.

—Attention is called to the following corrections to an article on "Psychoanalysis and Psychiatry," by Dr. Ernest Jones in the January, 1930, number of THE PSYCHIATRIC QUARTERLY:

Page 81, first line, second paragraph. For "It is my duty" read "It is not my duty." Page 91, line 17. For "whole biology" read "whole of biology." Page 93, line 25. For "task, can" read "task, our intervention can."

Dr. Flavius Packer, a psychiatrist who had been attached to the State Hosptal service but who for several years past has maintained a private institution at Pawling, the White Oak Farm, died on the first of May, 1930, at a New York hospital where for some days he had been suffering from a heart ailment with complications. A few years after graduating at the Albany Medical College in 1893, Dr. Packer became first assistant physician at the Kings Park State Hospital, transferring later to a similar posi-

tion at the Matteawan State Hospital for insane criminals where he remained until his appointment as head of the psychiatric division of Bellevue Hospital in New York City. Leaving this service in 1904, he founded the Riverdale Sanitarium for mental diseases. In 1926 he sold this institution and founded the sanitorium at Pawling.

Dr. Packer was a member of the American Psychiatric Association, Bellevue Hospital Alumni Society, and the New York Academy of Medicine.

He is survived by his wife, Mrs. Maude Packer; his sister, Mrs. W. A. Thomas of Pawling, and a brother, Jesse H. Packer, of Albany.

—Great encouragement has been given to the prosecution of medical research in the United States by the act of Congress, approved May 26, 1930, entitled "An act to establish and operate a National Institute of Health, to create a system of fellowships in said institute, and to authorize the Government to accept donations for use in ascertaining the cause, prevention, and cure of disease affecting human beings, and for other purposes." The Hygienic Laboratory of the Public Health Service under this act becomes the National Institute of Health. Provision is made by Congress for additional buildings and equipment. The Secretary of the Treasury is authorized to accept gifts made unconditionally for the purpose of research in the fundamental problems of the diseases of men. Conditional gifts may also be accepted if recommended by the Surgeon General and the National Advisory Health Council. The Surgeon General is also authorized to establish and maintain fellowships in the National Institute of Health from funds donated for that purpose. Provision is made for the appointment of individual scientists other than commissioned officers of the Public Health Service, to fellowships in the Institute.

—Governor Roosevelt has announced the appointment of Dr. Walter N. Thayer as State Commissioner of Correction to succeed Dr. Raymond F. C. Kieb, who will return to his former post as superintendent of the Matteawan State Hospital. Dr. Thayer will assume the duties of his new position on August 1, 1930.

Dr. Thayer is the son of the late Walter N. Thayer of Brooklyn, who was the first warden of Great Meadows Prison at Comstock, and who was also warden of Clinton Prison at Dannemora for several years. The son received his medical degree in 1900. After practicing medicine for eight years, he became physician at the Connecticut State Prison. He was later appointed assistant physician at Clinton Prison and in 1913 became assistant superintendent at the State Reformatory at Napanoch. When the latter institution was converted into an institution for defective delinquents